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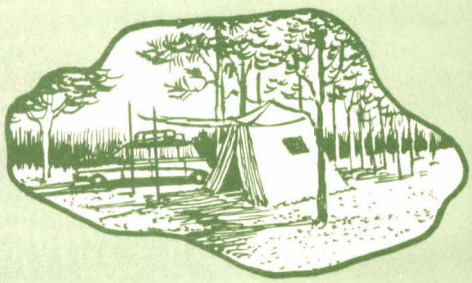
FOREST SERVICE HANDBOOK

NORTH CENTRAL REGION

MULTIPLE USE MANAGEMENT GUIDE

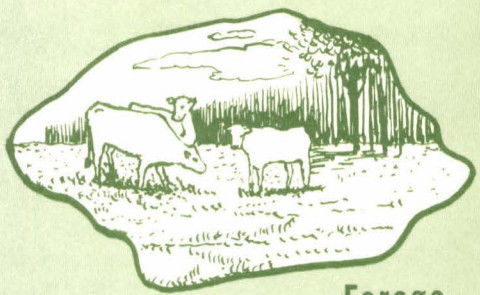
Wood

Wildlife



Outdoor Recreation

Water



Forage

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MULTIPLE USE MANAGEMENT GUIDE

NORTH CENTRAL REGION

MULTIPLE USE MANAGEMENT GUIDE

FOREWORD

Congress directed through Public Law 517-1960 that National Forests be managed under the principles of multiple use and sustained yield. The Forests in the North Central Region of the Forest Service have always been, and will continue to be, managed accordingly.

The Forest Service achieves multiple use objectives through coordination of its effort with that of companion private organizations, landowners, Federal, State, and local government units and organizations.

This Regional Guide has been written for the National Forest administrator's use. It contains decisions that are applied Regionwide. These decisions are set forth under the Management Direction section for each zone in Chapter 300.

Local decisions are made by the Forest Supervisors and District Rangers within the framework of the Guide. These administrators record their decisions in District Multiple Use plans.

Forest Service administrators will be primarily interested in Chapter 300. It defines the various broad land management zones. It then presents the decisions on levels of resource use in a Management Direction section for each management zone. Finally, it itemizes the techniques to be used in maintaining these use levels. The techniques are termed "Coordination Requirements."

In Chapter 200 the Guide describes the situation of each resource and supporting activity.

Each Forest and District has certain resource combinations that require special management attention. The manner in which Regional direction will be attained in these "Management Units" is jointly determined by the Forest Supervisor and the District Ranger. Management units may include wildlife openings, roadside areas, waterfront strips, developed campgrounds, summer home groups, etc.

For example, a stand of quality seed source timber may be within a "Water Influence" management zone. Can it be managed as a seed orchard when management emphasis is on maintenance of a forest environment and development of recreation values? Yes. Management Direction in this zone requires that the growth and harvest of timber

products be correlated with a variety of other, principally recreational, resource objectives. Consequently, while physical use and occupancy of the unit can be limited or prohibited, signing must be educational and informative. Cull tree removal and thinning must be conducted with awareness of the audience which may be viewing the work. Erosion prevention practices should be prompt and the most effective known. Insecticides and herbicides may be used after thorough evaluation of potential biological effects and preapplication acceptance by the area users. A satisfactory forest environment can be created with the clear columnar form of seed tree boles and a clean, level forest floor. Creation of ground vegetation favorable to selected wildlife species can be based on a biologist's recommendations.

This is an example of Management Decisions recorded in the District Multiple Use Plan. The area is identified on the District atlas map as a management unit. This process of identifying management needs is used for each unusual situation.

This Guide is written within present laws, regulations, and policies. No part should be construed as a deviation from such basic authorities.

The Multiple-Use Sustained Yield Act is the manifesto for all National Forest administrators. It is mandatory that we enact advanced multiple use planning, continuously. To get the job done, there must be orderly thought and action in developing the technical program.

These recorded decisions and requirements are the real core for continuity of Forest planning and action, year in and year out.

December 1, 1964

Geo. S. James

GEORGE S. JAMES
Regional Forester

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

MULTIPLE USE MANAGEMENT GUIDE, REGION 9

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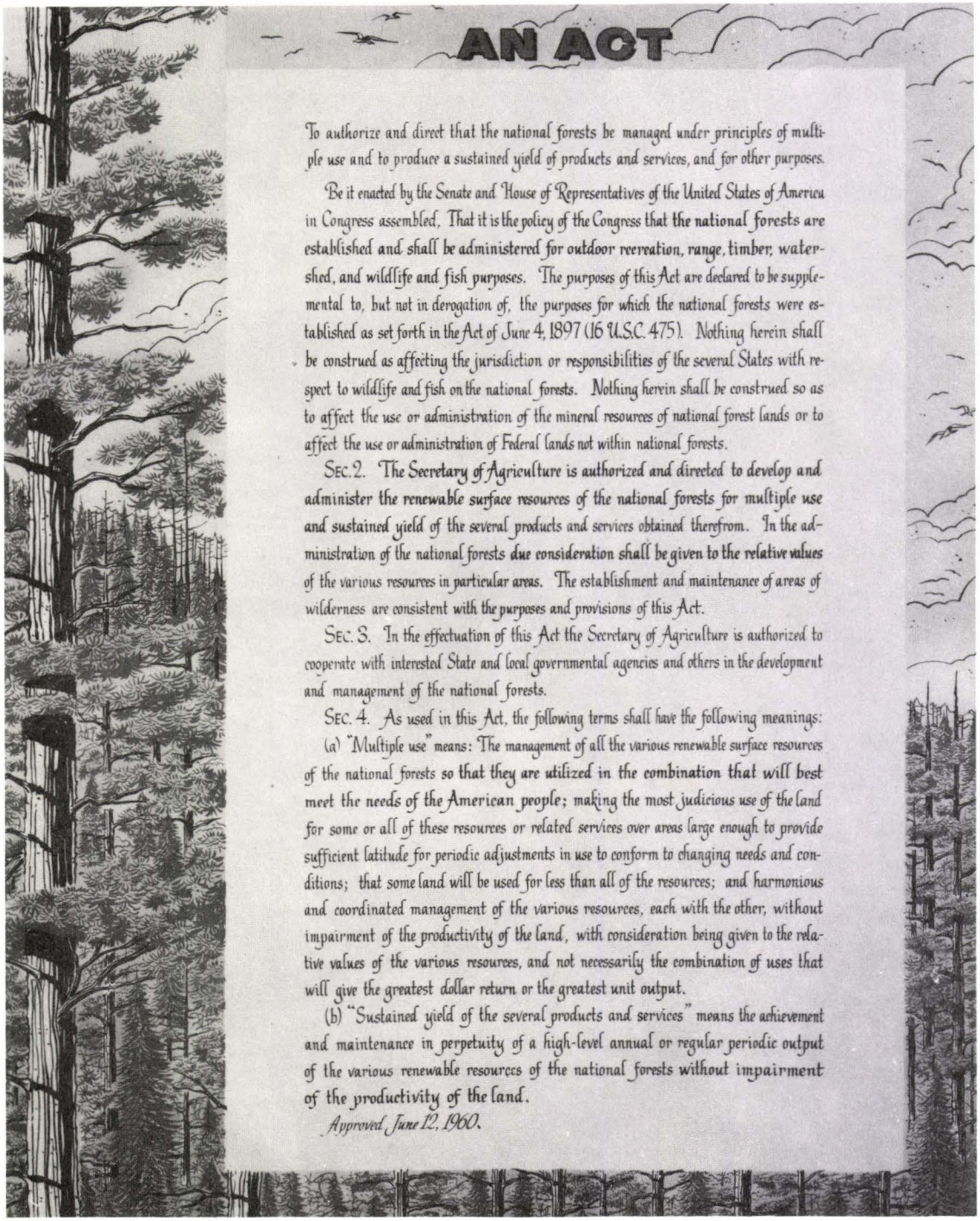

AN ACT

To authorize and direct that the national forests be managed under principles of multiple use and to produce a sustained yield of products and services, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That it is the policy of the Congress that the national forests are established and shall be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes. The purposes of this Act are declared to be supplemental to, but not in derogation of, the purposes for which the national forests were established as set forth in the Act of June 4, 1897 (16 U.S.C. 475). Nothing herein shall be construed as affecting the jurisdiction or responsibilities of the several States with respect to wildlife and fish on the national forests. Nothing herein shall be construed so as to affect the use or administration of the mineral resources of national forest lands or to affect the use or administration of Federal lands not within national forests.

SEC. 2. The Secretary of Agriculture is authorized and directed to develop and administer the renewable surface resources of the national forests for multiple use and sustained yield of the several products and services obtained therefrom. In the administration of the national forests due consideration shall be given to the relative values of the various resources in particular areas. The establishment and maintenance of areas of wilderness are consistent with the purposes and provisions of this Act.

SEC. 3. In the effectuation of this Act the Secretary of Agriculture is authorized to cooperate with interested State and local governmental agencies and others in the development and management of the national forests.

SEC. 4. As used in this Act, the following terms shall have the following meanings:

(a) "Multiple use" means: The management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

(b) "Sustained yield of the several products and services" means the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forests without impairment of the productivity of the land.

Approved June 12, 1960.

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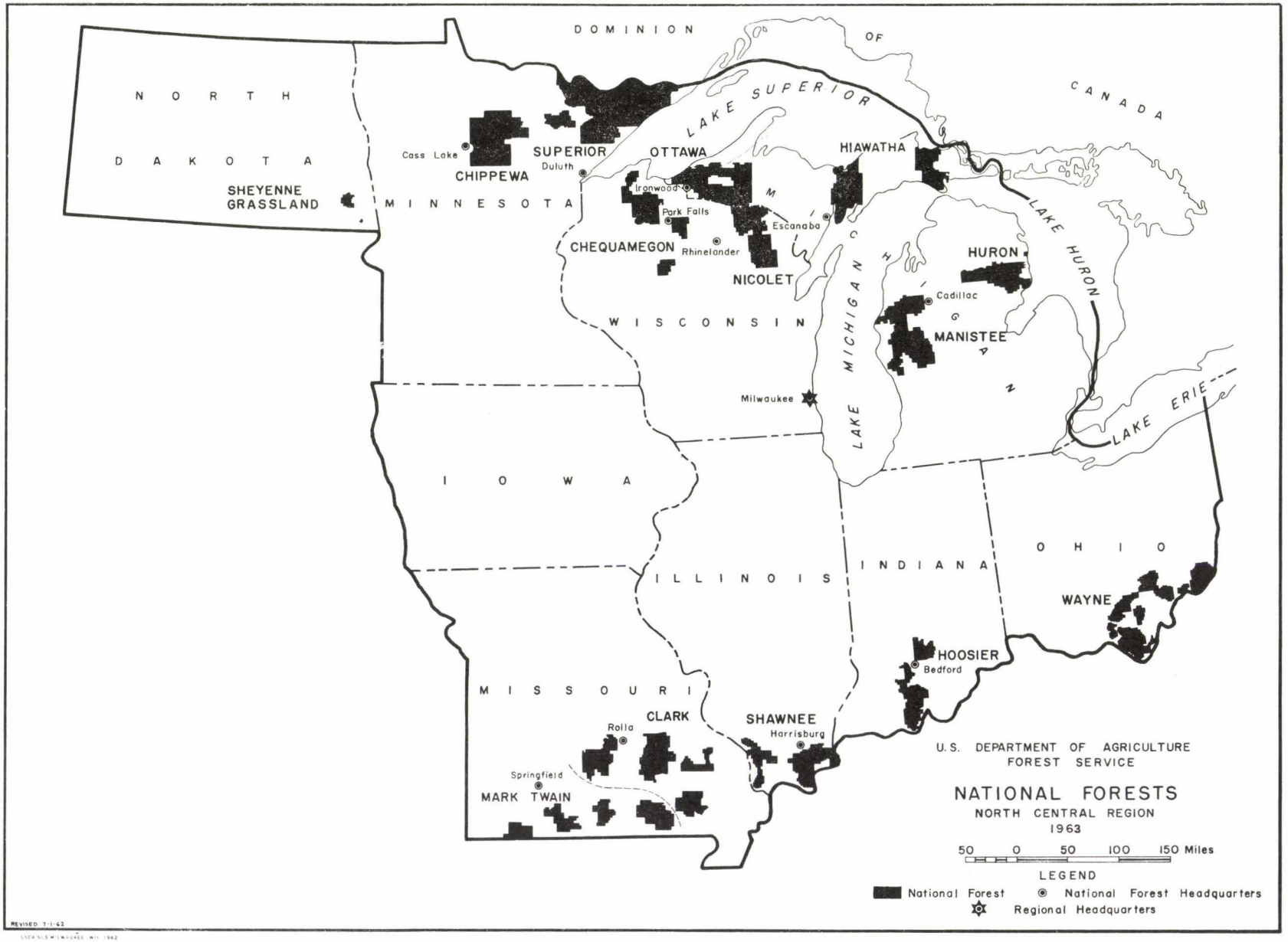

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CHAPTER 100 INTRODUCTION

110 - AREA. The States of Missouri, Illinois, Indiana, Ohio, Michigan, Wisconsin, Minnesota, Iowa and North Dakota comprise the North Central Region of the Forest Service. There are 13 National Forests and one National Grassland organized into 11 administrative units. Public and private land area within National Forest boundaries totaled 16,899,975 acres in 1964. National Forest land ownership for the same year was 8,517,142 acres.

The 1964 National Grassland area of 71,109 acres is all Federally owned. Private land surrounds the Grassland parcels.

120 - NATIONAL FOREST OWNERSHIP. National Forest lands in this Region have almost entirely been acquired under the Weeks Law of 1911. This law directs the purchase of forested, cut-over, or denuded lands necessary to the regulation of streamflow or the production of timber. National Forest ownership is rarely in large blocks. Normally, it is intermixed with state or county forest lands and private properties.

130 - REGION POPULATION. The Region frames a population of 50 million, represented by the major cities of Cleveland, Cincinatti, Detroit, Chicago, Milwaukee, St. Louis, Minneapolis, and St. Paul. There are thousands of satellite urban areas. This close proximity to dense population centers results in a demand for all resource yields from National Forest areas. Future population growth may be expected to exert an even stronger demand for National Forest products and values. (See Fig. 130-1)

140 - FOREST POPULATION. Forest area residents, including those in surrounding counties, together with industrial developments in the area, have decreased steadily in numbers during the last twenty years. Better opportunities for employment in the large cities have proved to be a strong attraction, especially for young people.

The reduction in population is partly a result of increased efficiency (and automation) in forest products and mining industries, the main employment base in the forested area.

It is expected there will be a bottoming out of this population loss. The low level has apparently been reached in many localities. A general population increase may be expected in the immediate future.

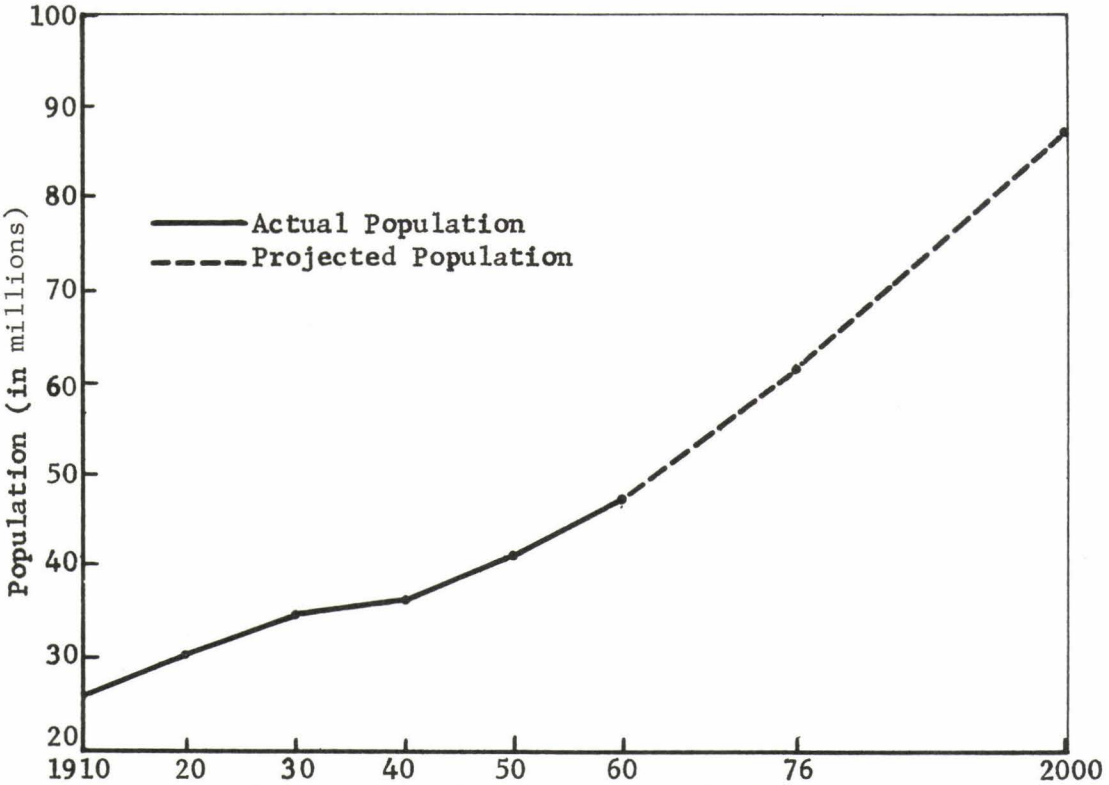

Fig. 130-1, Trends in Region's Population

150 - FOREST PRODUCTION AND USE FOR 1963.

National Forest Resource production and use was a major part of local economy. Recreational visitors to National Forest areas totaled 9½ million. Over 1100 developed recreation sites including campgrounds, swimming beaches, ski areas and similar improvements could be found throughout the Forests. Picnic and camping areas alone can accommodate four thousand families at any one time. Often there are more people using the areas than there are facilities or camping spaces.

National Forest timber sales were close to one-half billion board feet. This product was valued at three million dollars on the stump and ten times that figure in value to loggers and processors. National Forest tree nurseries produced 25 million trees for planting. Over forty thousand acres of National Forest lands were reforested that year. Mills wanted all of the sawlogs they could get.

Attractions of the fish and wildlife resource accounted for over 40 percent of the Regional recreation use. Hunters harvested 50 thousand deer and 800 bear. One thousand one hundred acres of wildlife openings were created. Three thousand eight hundred acres were planted or improved for wildlife foods and 430 wildlife ponds were constructed. Individuals and family groups were eager for the sight of the wild animals and birds of the forest.

Twenty watersheds were completely--or more than 50 percent--developed in this same year. Over a mile of lake and stream banks were stabilized against soil eroding influences. Two thousand five hundred acres of burned areas were seeded and restored to productivity. Twenty-two proposals to create new lakes in the National Forests were made by area people.

Over 400 farmers and ranchers grazed 14,000 head of livestock on National Forest and National Grassland property in Missouri and North Dakota. Vegetation was released on 1,100 acres and seeding was done on 490 acres. The demand for grazing of livestock exceeded the forest potential in these areas.

The resources of the National Forests and Grassland are proving to be an integrated and basic part of the North Central Region's economy.

160 - REGIONAL PHYSIOGRAPHY. The physical geography of the Region is varied. The glaciers advanced and receded in relatively recent time. They covered all of the land occupied by the Lake States National Forests, but did not reach far enough south to cover the area occupied by those of the Central States. Consequently, the surface features differ between these two sections.

160.1 - Lake States Forests. Prior to the glaciers, the bedrock had been dissected by erosion. Glacial action planed the hills and ridges and filled the valleys and water channels with glacial debris. The repetitive glacial process of advance and retreat in time left behind a level to rolling surface of glacial drift. However, some steep slopes occur where glacial debris was not evenly deposited. The glaciers gouged rather than leveled the igneous rocks of the Laurentian Shield in the Lake Superior area. There, these rocks occur on the surface and are among the oldest known formations on the continent.

The gouging action of the glacier and uneven deposition of its debris left many natural basins. These filled with water to form the many lakes found in the Lake States.

After the glaciers, tree growth covered all of the area occupied by the northern forests. Forest cover still predominates. Generally, the pines occurred on the coarser, well drained, sandy soils, the hardwoods on the finer textured soils, and swamp species on the organic or poorly drained soils.

160.2 - Central States Forests. In the area of these southern units, the bedrock has been exposed to the elements for ages. Weathering and erosion have been continuous and have cut many deep and branching channels in the surface of the land. As a result, the topography is rough and broken with generally narrow valleys, pronounced ridges and frequently steep rocky hillsides. Elevation differences are usually less than a thousand feet between ridge tops and valley bottoms.

Originally, forests covered practically all of the area with the exception of the "glades" in Missouri. Forest cover still exists on a high percentage of the land. Oaks are now the principal species. Usually, forests occupy the steep rocky slopes, narrow ridges, or areas subject to frequent overland flow. The level ridge top land and stream valleys are frequently cleared and farmed. Forest land management is the highest use for most of the area. The topography and soils do not lend themselves to profitable agriculture.

170 - HISTORY OF REGION. The North Central Region was created by administrative action in December of 1928. Previous national forest administrative units existed principally in Michigan and Minnesota as early as 1902. The history of the National Forests and their resources is available in detailed brochures and reports.

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210 - RESOURCE SITUATION

210.1 - Purpose of Statements. The supply-demand relationship of the resources constitutes the foundation upon which management decisions will rest. This chapter, in Section 210, contains situation statements for the various resources including for each resource:

1. Resource Demand - A comparison of demand with productivity.

2. Resource Potential - An appraisal of the present and future status of the resource.

3. Assumptions - A record of expected changes in product use and yield.

4. Management Analysis - A description of any resulting gaps or overlaps, together with an estimate of the necessary management action.

The 200 chapter does not contain decisions. Decisions are listed in Chapter 300 under Management Direction. They have evolved from the facts examined and analyzed in the situation statements in this chapter.

Situation statements for the various resources and supporting activities are presented in alphabetical order.

210.2 - Relationship of Supporting Activity. The condition and use of the resources are affected by the efficiency of supporting activities. For example, protection from fire is fundamental to the growth of timber and to the quality of water. The effectiveness of a road system is not only a limiting factor in the number of people using an area, but in many ways it may be a direct contribution to the quality of visitor enjoyment.

Therefore, it is apparent that the situation for the resources is interwoven with the so-called supporting activities. Here, again, facts are presented and analyzed, in section 220, for the supporting activities in the same manner as for the resources in section 210.

210.3 - Soils Information. National forest land in the North Central region is principally composed of productive forest soils. Topography and climate, along with other factors, eliminate these lands from agricultural use classifications.

Limited knowledge in the science of a single resource may understandably have a serious effect on both the quality and quantity of the resource being produced. But, a lack of knowledge of forest soils potential, limitations, and characteristics can lead to management errors for all resources.

Use of management techniques which disregard soils limitations may result in damage to land productivity. Productivity, when lessened, may be costly, or impossible, to rebuild. Potential peak yield and efficient land use will be more readily attained when management knowledges, including soils information, are complete.

The soils program in the North Central Region gives the management forester needed soil facts. Inventories acquaint him with the location of significant soils. Interpretation of soils characteristics in terms of their effect on individual resources establishes a foundation for sound action programs. Continued soils research leads the way for improved intensive management.

Soils knowledge will guide managerial adjustments in resource association, in emphasis on products and use, and in functional goals. All these actions can then be made with a strong certainty of balance between land productivity and mankind's needs. Knowledge of the characteristics and limitations of the various soils is basic to effective forest management.

210.4 - General Information. Climatic factors, including rainfall distribution and seasonal weather conditions, together with soils information and similar data, can be pinpointed in a locality or broadly stated for the Region. Each classification may involve various degrees of scientific knowledge. Recommendations resulting from such specifics can be of great value in managing many resources. However, all are fundamentals. They can be classified along with arithmetic, chemistry, and economics to be used where needed, when applicable, and if available. They are not management techniques. It will be the responsibility of unit managers to gather and utilize this information in the process of land area management.

211 - MINERALS

211.1 - Resource Demand. The development of mineral deposits is a multi-million-dollar segment of Forest area economy. It involves every Forest in the southern part of the Region and over half of those in the north. Royalties and rentals shared by local and Federal government units approximate $140,000 annually.

Over fifty forest communities within, and adjacent to, National Forest areas have an economy based on valuable minerals development. In addition, the demand for low valued minerals expands. These include sand, gravel, clay, barite, and calcite. The sand and gravel alone are produced in quantities valued at several million dollars annually. Much of this is provided to local governments for public purposes at no cost.

Interest in United States-owned minerals has increased rapidly during recent years. A large share of this attention is directed to the oil and gas deposits. Such attention is accelerated by the ease of operation resulting from U. S. minerals being in large blocks. However, about 80 percent of the subsurface rights underlying National Forest lands are privately owned.

There will be a continuing and increasing demand for sand, gravel, and other low-valued minerals.

211.2 - Resource Potential. Mineral exploration throughout the region has been stimulated by a variety of factors. Two principal influences are: increased National needs for minerals as the nation's industrial capacity expands, and bettered relative proximities to the markets resulting from improved transportation systems. The capacity to produce the National Forest mineral resource is now greater, as a result of discoveries, than it ever has been. Additional U. S. mineral rights are rapidly becoming available in National Forest areas. This is a result of the expiration of privately-held mineral reservations. Mineral exploration activity in the National Forests is extending over more area and to deeper levels.

211.3 - Assumptions

1. There will be a continuing and increasing demand for sand, gravel, and other low valued minerals.

2. Mineral activity in connection with higher valued ores and deposits can be expected to expand.

3. More efficient equipment will allow mining of minerals presently not economically available.

4. Opportunities to coordinate minerals management and surface renewable resource management will increase.

5. Strip mining, as a method of recovering subsurface materials, will become more common throughout the Region.

6. Control of stream sedimentation and pollution resulting from mining activity will be an increasingly important management responsibility.

211.4 - Management Analysis. Mineral development methods must be designed to protect and restore surface values at an early date. Many strip-mined areas can be satisfactorily rehabilitated for production of wildlife species, fishing, hiking, horseback riding, and growth of certain timber species.

Ordinary drilling operations and shaft mines generally do not conflict with management of other resources if normal care is used.

212 - OUTDOOR RECREATION

212.1 - Resource Demand. The single, most compelling attraction for outdoor recreation is water. Recreation use of the Forests is in direct proportion to water availability, accessibility, and quality. Visitors attracted by the National Forests of Region 9 spend an estimated half billion dollars annually. Direct Forest area expenditures approximate 125 million dollars. Visitor dollars in adjacent localities amount to nearly 400 million.

There has been a steady and rapid increase in recreation visits to the Forests during the past several years. The number of visits increased nearly 86 percent from 1958 through 1963 from 5.1 million to 9.5 million visits. Studies indicate that visits will increase almost three times over the 1958 figure by 1976 and 7½ times by 2000. (See Figures 212.1-1 and 2.) Most of the Lake States Forests report that half of the time developed camp and picnic areas are being used by more people than they are designed to accommodate.

The single most compelling attraction for outdoor recreation is water.

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A notable trend in recent years has been the growing demand for wilderness-type recreation. Winter sports use has also multiplied rapidly. In addition, driving for pleasure has become a quite popular forest use activity. There is a growing demand to know more about the forest environment. Public interest in historical, geological and archeological features is developing rapidly.

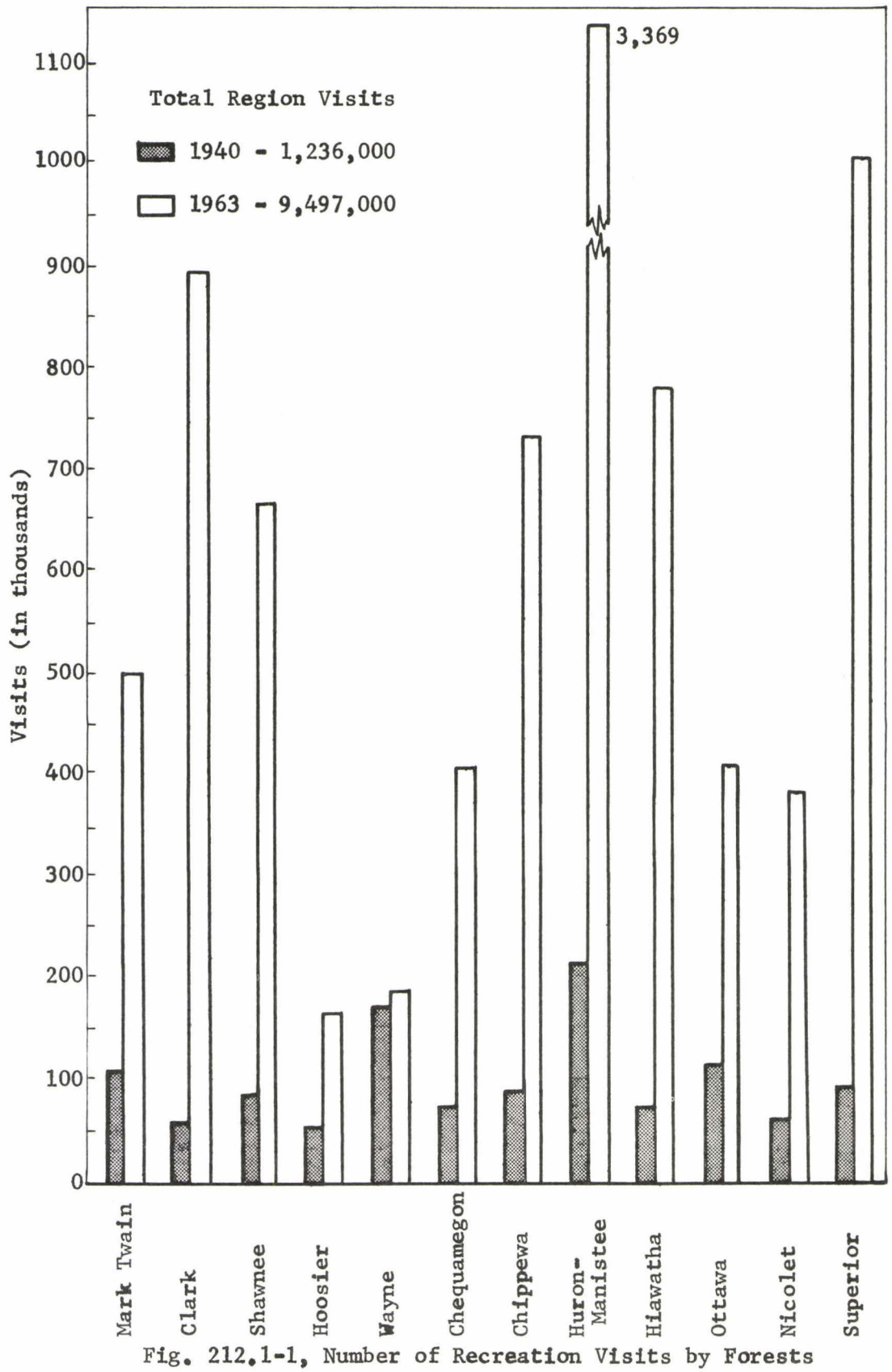

Fig. 212.1-1, Number of Recreation Visits by Forests

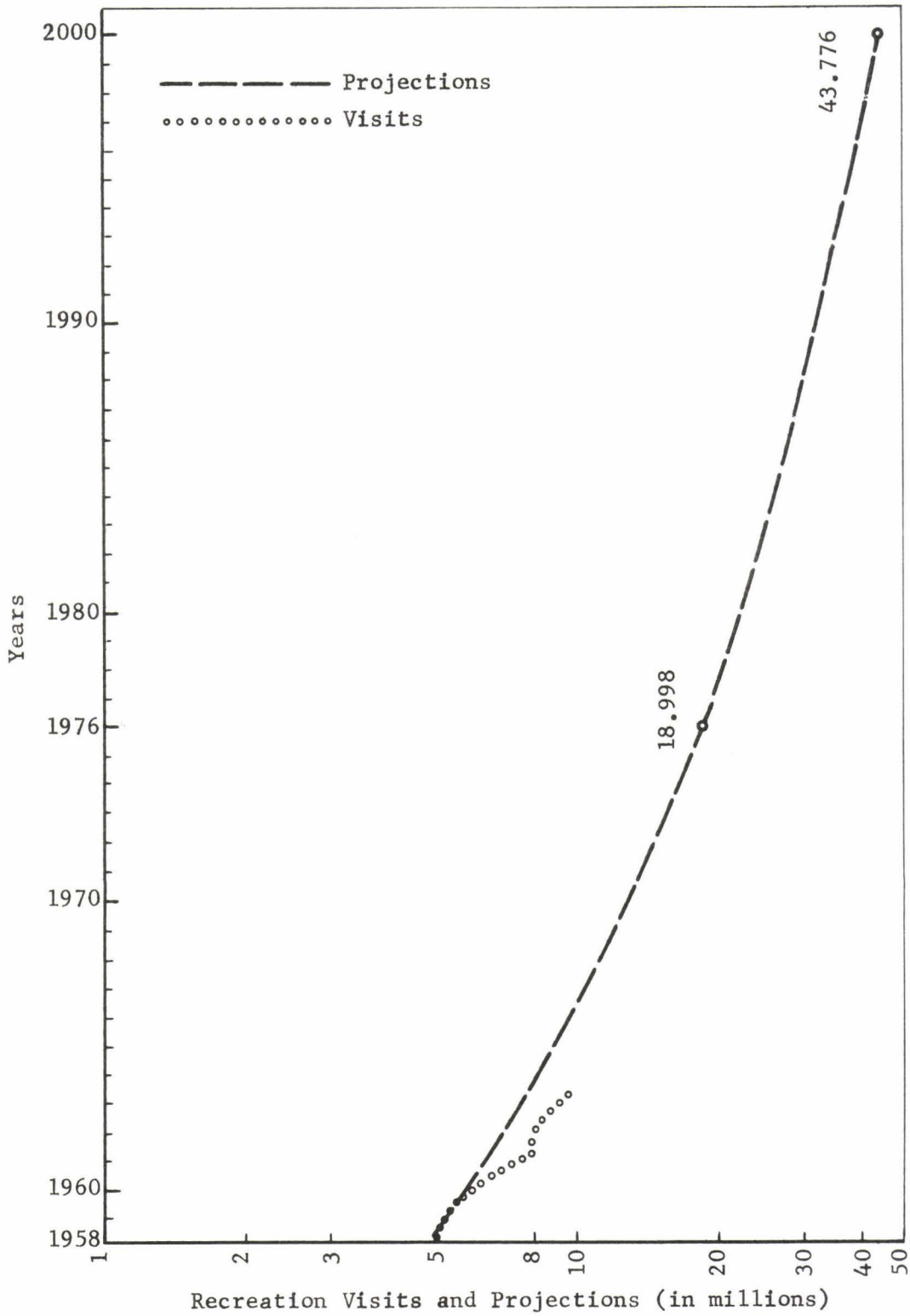

Fig. 212.1-2, Past and Projected Recreation Use

212.2 - Resource Potential. Frontage on good quality lakes and streams is in very short supply in the southern part of the Region. However, while there are no natural lakes in the Central States, there are a number of good artificial lake development chances. High quality water frontage is plentiful in the Lakes States area, but most of this frontage is in private ownership and is in high demand for private and commercial use.

Numerous attractive fishing and canoeing streams are dispersed throughout all National Forest areas. Many of these waterways cross large areas of uninhabited forest. The waterways are ideal natural settings for relaxed, informal, uncrowded recreation activity. Unfortunately, in many instances, mixed landownership patters do not assure a continuance of such tranquil conditions.

During a 1960 survey, 43,000 acres of land were inventoried for future development to meet expected general public recreational use demands. In this inventory it was necessary to include large acreages of recreationally poor quality land. Forty percent or 16,000 acres were in the poor quality class.

National Forest lands offer a wide range of opportunities to enjoy informal and natural outdoor recreational pursuits. They provide good deer, turkey, grouse, or squirrel hunting appropriate to season and area. The scenery and general attractiveness for hiking, riding, and touring is varied and of high quality. The Region's Forests are famous for fall color tours and spring blossom vistas. Pastimes, such as berry picking and mushroom gathering, have developed beyond the casual local resident use. Currently, thousands of people from the cities make a trip each year to the Forests solely to enjoy these activities.

Within the Region there are 4,000 acres improved as picnic areas, campgrounds, resorts, summer homes, winter sport developments, and similar sites. In the Boundary Waters Canoe Area of the Superior National Forest, 876,000 acres are devoted to recreation in a primitive type of environment. In addition, 22,500 acres outside of the Superior Forest and elsewhere in the Region have a similar near-natural status. There is little opportunity to add to these special classifications from lands in present National Fores ownership.

These Forests are within a day's travel of a quarter of the nation's population. There is access to all Forests by a steadily improving high-speed highway system.

212.3 - Assumptions

1. Types of forest recreation use such as camping, hiking, riding, boating, canoeing, skiing, wildlife observation, and driving for pleasure will continue to exceed predictions.

2. There will be an increasing demand for the dispersed, uncrowded, and informal outdoor travel and wilderness type experiences.

3. Water is a prime factor in most outdoor recreation activities. Preservation and improvement of water-based outdoor recreation opportunities will intensify in importance.

4. Winter sports use will continue to expand. Development will be primarily on private land, because of limited supply of satisfactory National Forest skiing sites.

5. Enjoyment of the wildlife and fish resources will become more closely identified as an integral part of National Forest recreation.

212.4 - Management Analysis. The National Outdoor Recreation Resource Review Commission in its 1962 report to the President entitled "Outdoor Recreation in America" states that there is insufficient public recreation land of all types in the Midwest. It points out that the North Central region of the United States, with 29% of the total population, has only 12% of the recreation acreage.

To meet the future needs of the Nation's citizens, recommendations of the Commission include the following:

1. Immediate action to reserve or acquire additional water, beach and shoreline areas.

2. Acquisition of shoreline lands on reservoir development for public access.

3. Acquisition of key tracts to assure access to water-based recreation.

4. Take steps to insure that parts of certain rivers remain in free-flowing state and natural setting.

Since many of the existing and potential sites inventoried are small or of low quality, there is need to acquire adjacent lands to provide efficient, serviceable and economical development.

There are key lakes and reservoirs with no public ownership available for development or access. There is still an opportunity to preserve certain streams in a free-flowing natural state. But there is little opportunity to preserve additional wilderness. Potential exists to establish additional "roughing areas" through acquisition of key tracts which will provide opportunities for wilderness-type experience. There are opportunities to acquire scenic, lakeshore, stream and geological areas, scenic lands along roads, and other attractions of unusual interest. These and other lands needed for hiking and riding need to be acquired and managed for future public enjoyment.

To overcome deficiencies in quality of land suitable for recreational development and to meet other needs cited above, the Region needs a greatly expanded program of land acquisition.

Other public land management organizations involved in serving recreation use are normally complementary to the National Forest contribution. Consequently, the analysis of need and land capabilities for each Forest is to be examined in the frame of all ownership contribution and of total area objectives.

There is a good supply of private land available to meet the need for summer homes, private resorts, non-forest outdoor recreation pursuits, and similar activities. Development of dispersed use forest recreation such as roughing areas, waterways and trails for both hiking and riding, will complement private developments. Coordinated management will be needed to build up soil and vegetative cover so sites will be ready for use when needed.

Recreation use generally requires an upgrading of improvements and management procedures. Dust free roads, for example, have become more of a necessity than a luxury.

213 - RANGE. The forage resources of Region 9 Forests and Grassland are important in two geographic situations:

213.1 - Sheyenne National Grassland

213.11 - Resource Demand. The management program on this 71,000 acre project has become an outstanding example of good land use. The economy has been shifted from general farming on small-size units to beef cow-calf production on large operations.

The unsuitability of this land for grain production was recognized in its early transfer from private to public ownership. One hundred and twenty-two farmers with permits to graze on the project area have built up high-quality beef herds yielding over two million dollars income annually. They use their own lands to produce feed for the stock during the winter months. The animals graze the Grassland in the summer.

Range recovery on the Sheyenne National Grassland has reached the point of maximum natural productivity; however, new techniques in resource management indicate a potential for increasing productivity beyond the natural yield level.

Grazing capacity for 10,000 cows during six months does not meet the total demand. This capacity is fully committed to the present operators in accordance with the preference system in use.

Partly as a result of the scarcity of public land in the vicinity of the Grassland, it is being used more heavily each year by hunters.

213.12 - Resource Potential. Range recovery, in the 25 years of protection and management, has reached the point of good natural productivity. The full yield is being utilized through grazing. However, new techniques in resource management indicate a potential for increasing productivity.

The deer population has averaged about 10 deer per square mile. About 150 deer are being harvested annually. The area can produce a harvest of 300 deer annually.

The pinnated grouse is in critical status, both nationally and in North Dakota. This bird is native to the Grassland area.

213.13 - Assumptions

1. Requests to increase forage production for the established livestock industry will continue.

2. Wildlife interests will similarly request greater yield of such wildlife species as deer and pinnated grouse.

213.14 - Management Analysis. Advantage must be taken of newly developed techniques in forage and habitat management. Additional increases in productivity can be used to bring adjustment between resource yields and demands.

213.2 - Missouri Ozarks.

213.21 - Resource Demand. The economy of the Ozarks has been primarily based on livestock since these hills were first settled in the early 1800's. There has been a steady demand for livestock forage. Residents who were not in a position to provide their forage needs on their own lands or could not obtain other means of livelihood allowed their stock to run in the Forest. The current shift in the economy is now toward a more varied base. It uses the restored timber, recreation, and wildlife resources. The change has been gradual, but it is improving economic conditions.

213.22 - Resource Potential. A forage survey completed in 1961 revealed there is not enough forage in timbered lands of the Clark and Mark Twain National Forests to justify their use for grazing.

However, there are non-timbered areas which can continue to supply grazing. These are managed as grazing allotments. They include the glade types on the Ava Ranger District of the Mark Twain.

Both the Clark and the Mark Twain Forests contain limited acreage parcels, such as old fields and some smaller glades, which may be maintained for livestock or wildlife grazing. There are also some scattered tracts of noncommercial timber. Forage can be developed on the latter by removing the overstory.

There are indications that commercial timber lands may develop a usable range resource in the future. The natural growth of these stands, supplemented by timber stand improvement and timber sales, will result in an open, high forest. This situation can result in an increase in the yield of forage and other low vegetation. But, the development of such a range resource will not be significant for at least ten years.

Unrestricted running of hogs conflicts with the development of watershed, timber, recreation, and wildlife values.

213.23 - Assumptions.

1. Grazing will be limited under permit to the National Forest lands adopted and classified for this use.

2. The need for wild or unimproved grazing lands will decrease.

3. The need for managed, improved grazing land will intensify.

213.24 - Management Analysis. Intensive management for grazing of those National Forest lands which are primarily suited for this purpose will increase the contribution to local economy. At the same time, promoting the improvement of privately owned pasture range will be basic to maintenance of a stabilized livestock industry.

The opportunities for joint production of timber and forage will require continuing study.

214 - TIMBER

214.1 - Resource Demand. The 1964 appraisal of timber trends projects a 2½-fold increase in demand for sawtimber in the northern United States by the year 2000. Total wood needs are expected to increase three times over those of the present.

The roadside delivered value of regionally produced timber is 200 million dollars annually. It expands to $6 billion in the process of marketing and manufacturing. Forty thousand people are cutting logs and hauling timber. Sixty thousand people are sawing boards and running paper or pulp machines. Employment in all regional timber-based economic activities is over 700,000 people. It is the livelihood for over 2 percent of the total regional population.

Timber-based industry provides a livelihood for over two percent of the Region's total population. National Forest timber accounts for four percent of the Region's production.

This figure is quite impressive when placed against the Region's industrial background. Chicago is the railroad hub of America and a major steel center. Detroit is the automobile capitol of the nation. St. Louis is the principal industrial bridge between the East and West. The leading grain processing center in the United States is in the Minneapolis-St. Paul area. Northern Minnesota is famous world-wide for its iron ore production. The busiest waterway system in the nation splits and bounds the Region. And, even

in the face of this industrial might, timber-based economic activity supports 2 percent of the regional population.

There are 84½ million acres of commercial forest land in the Region. Over 800 million cubic feet of timber is harvested each year. National Forest timber accounts for 4 percent of the production. The National Forest harvest is valued at around $3 million per year in returns to the local and Federal Government.

The appraisal of timber trends warns that by the year 2000, timber supplies will fall short of meeting projected demands for most products. Even now, production in the area of the National Forests does not fill the demand for quality sawtimber. Only a small portion of the softwood lumber consumed in the Region is produced locally because of the lack of sufficient logs and the low quality of the sawtimber. The small amount of quality hardwood sawtimber marketed each year brings a very good price. This market for top grade material will expand quickly with any increase in the supply.

The use of roundwood for pulp in the Lake States has increased at the rate of over 4 percent annually for the past 10 years. The National Forest supply of hardwood cordwood is easily meeting the present demand, and will continue to do so for some time. Pine cordwood is generally in good demand. However, this product is not marketable currently in certain localities. In the southern part of the Region the market for pulpwood is weak but improving.

214.2 - Resource Potential. The condition of the regional timber resource is such that it cannot now supply the needed sawtimber. The resource capability for general fiber production, however, exceeds present needs for all species except pine. The current situation for pine fiber is one of approximate balance between supply and demand on the National Forests. The young pine stands of the Region also have the potential to fill future needs of both pine fiber and pine sawtimber if intensively managed.

In summary, the timber resource is capable of filling future fiber needs as a generalized forest product. It will not be capable of meeting demand in the foreseeable future for quality material, such as sawlogs and veneers or specialized products and species.

214.3 - Assumptions

1. Wood production from the Forests will continue to play an important part in maintaining a healthy community economy.

2. The need for large size, high quality, sawtimber will be acute and will continue to be greater than the supply.

3. Demands on the National Forest supply of wood of all categories will be greater than the regional share, as indicated by acreage alone. This will be particularly true for sawtimber.

4. The supply of pine cordwood will be in balance with the regional demand in most areas. However, the supply of all fiber will generally be greater than the demand.

5. Sawtimber may be expected to continue as the most valuable timber product of National Forest land.

6. A pickup in marketing and utilization will create more demand for more fiber.

214.4 - Management Analysis. National Forest lands account for 10 percent of the commercial forests in the Region. Their unity of management permits the National Forests to concentrate on providing timber products most needed by area economies. While the contribution may be relatively small, it is, and can continue to be, a highly valuable segment of the total economic effort. This can be brought about by coordinating management programs with those of the companion private ownerships, large or small, and of other public land organizations.

The projected deficit for sawtimber in the northern United States from the year 2000 onward requires the initiation of intensive timber management now. This requirement is most significant in sawtimber production.

At the same time, there is more flexibility in management for general fiber production. This is because of the relatively short time between management action and harvest.

Professionally, silviculture must be of an especially high order and geared to maximum sawtimber production in northern and central hardwood and red, white, and shortleaf pine timber types. Timber sales must have the dual objective of supplying needed products and improving the quality of residual stands.

The timber stand improvement program must be expanded and intensified through release, thinning, and pruning operations, together with other cultural practices in existing stands. This is required because of expected future heavy demand for quality products.

Seeding, planting, and natural regeneration efforts must be intensified and broadened. This will be necessary for an extended time if future needs for all renewable resources are to be met.

Lands having a minimum potential for long-term timber management objectives can yet be of critical value in increasing wildlife, water, or forage resource yields.

215 - WATERSHED

215.1 - Resource Demand. The 55 million residents of the area served by the Region's National Forests require 55 billion gallons of water per day (1,000 gallons per person). While depletion is only a fractional part (75 gallons per person) of the total use, the demand is increasing. Depletion is expected to rise from less than 8 percent in 1960 to about 14 percent in 2000. Not only will regional population expand to around 100 million in year 2000, but water use may increase to around 2000 gallons per person per day. This would result in a need for approximately 200 billion gallons per day and a depletion of around 28 billion gallons. Maximum dependable daily flow can be estimated at 200 billion gallons. Regionally, the flow available (with existing storage systems) 50 percent of the time will be around 100 billion gallons.

Stream and lake bank erosion continues to be one of the most damaging and influencing factors in resource management.

Clear, unpolluted water throughout the Region is in high demand for recreational activities. Stream and lake bank erosion continues to be one of the most damaging and influencing factors in resource management. Recommended soil protective practices have not been used by some public and private landowners. Soil disturbing activities, such as road construction, result in heavy stream sedimentation in many localities.

There is a need for decreased peak spring runoffs in the Central States. There are seasonal shortages of water in streams and impoundments in this same portion of the Region. There is a strong demand for new, small recreational impoundments throughout the Central States area. Flood control project proposals are actively supported.

Industrial use of water from National Forests is up in several areas. Development of taconite processes has brought the value of a good water supply to the forefront. Downstream demands for waters originating in the National Forest become stronger annually. The dumping of sewage into lakes and streams is becoming a major problem. The awareness of people to this situation is gradually increasing.

In several areas of the Region, portions of the principal streams are controlled by power companies. These companies regulate water flow on the basis of need for hydroelectric power.

Selected drainages on almost every Forest in the Region are important from an industrial aspect. Several drainages are involved in municipal watersheds.

215.2 - Resource Potential. Rainfall in the Region varies from 20 inches in the Sheyenne Grassland area to 48 inches annually in southern Missouri. Precipitation throughout the Region is about equally divided between the growing and nongrowing seasons.

National Forest water yield can be calculated as 2 trillion two hundred billion gallons annually, or 6 billion gallons per day. This is 11 percent of current demand and about 3 percent of anticipated need in the year 2000. Its principal values are its quality and timing of flow for maximum availability.

Quality of water is of prime concern on all National Forests. For example, in the Superior National Forest area the water source for the Boundary Waters Canoe Area is subject to pollution from industrial and human activities occurring outside of the area. Water quality appears to be deteriorating generally throughout the Region. In many localities, lake water and subsurface water are being polluted by numerous private septic systems.

An abundant fresh water supply exists in the Lake Superior area. Many major streams originating in National Forests of the Region are undeveloped but potentially suitable for meeting a variety of human needs.

Municipal and residential underground water supplies for broad areas of southern and eastern Missouri and selected locations elsewhere in the Region are replenished by the cachement area of the National Forests.

Hydrologic conditions of National Forest lands are improving under protection and management programs of the Forest Service.

215.3 - Assumptions

1. The primary on-Forest use of water will continue to be for recreational activities.

2. There will be increasing demand for residential and recreational occupancy on National Forest lands adjacent to water areas of medium to good quality.

3. Pollution from residential and similar occupancy use in water zones may be expected to become worse before appropriate local Government action is fully supported.

4. Industrial use of subsurface and surface waterflows from National Forest areas will continue to expand.

5. Industrial activities and use of water in certain locations will result in a deleterious effect on both quality and quantity of water.

6. Pressure for new impoundments within National Forest areas will continue.

7. The influence of forested land on quality and quantity of water yields will become more widely understood.

215.4 - Management Analysis. Good watershed conditions are basic to the management of all renewable resources. The soil must be protected. Constant vigilance will be required to keep it in place and productive. In this respect, there are opportunities for leadership in pollution control and the stabilization of eroding stream and lake banks, road ditches, and highway backslopes. As a result, the quantity, quality, and timing of waterflow from National Forest areas will serve as an effective mirror for all National Forest resource management activities. But, integration of the Forest Service effort with that of local government and of private landowners will result in measurable improvement of water quality and yield. Management must be directed to this end.

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216 - WILDLIFE AND FISH

216.1 - Resource Demand. Almost 5 million people were licensed to hunt in states of the North Central Region in 1962. This was one-quarter of all those who took gun or bow in hand throughout the nation. The states of Region Nine have only 17½ percent of the nation's forest land. Less than 10 percent of the land area is in public ownership. Only 13 percent of the nation's public land suitable for outdoor recreational use, including hunting, is located here.

From one-third to one-half of all recreation visits to the various Forests are for the primary purpose of fishing, hunting, or related activities.

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It is expected that resident population, now at 50 per square mile, will be over 100 people by year 2000. Hunting license holders may total 10 million. Private land open to public shooting can be only a shrunken fraction of today's acreage. Total predicted demand for hunting use of R-9 National Forests is estimated at 6-¾ million visitor-days for the year 2000 (6 times the visits in 1959).

The 50 million people in the North Central Region zone of influence will number 105 million in the year 2000. The 8 million fishermen will be 18 million. The 150 million fisherman-days of use will be doubled. The area of fresh water (exclusive of Great Lakes) is now .7 acre per resident in Minnesota and .01 acres per person in Ohio. In 2000, this will amount to less than .4 and .005 acres, respectively, per resident. The nonresident visitor impact is yet to be added. This impact is included in the predicted demand of 12 million resident and visitor-days fishing enjoyment in 2000 (8 times the visits in 1959).

Even now, from one-third to one-half of all recreation visits to the various Forests are for the primary purpose of fishing, hunting, or related activities. Hunting and fishing use in the Region has increased at the rate of about 4.5 percent annually since 1940. Winter fishing is becoming an increasingly popular activity on the northern Forests. Finally, $250 million will be spent by hunters and fishermen in forest communities in the year 2000.

216.2 - Resource Potential. Forest land management practices are resulting in improved fishing waters and wildlife habitat conditions. Forest areas are capable of producing increased wildlife populations.

In northern Forests, the downward trend in habitat will be reversed as second growth stands become merchantable, and management of animal populations is achieved.

In the southern part of the Region, wildlife populations are increasing and will eventually utilize available habitats.

White-tailed deer wintering areas are of critical importance in the northern part of the Region. These areas are the chief limiting factor determining carrying capacity and herd numbers.

Good watershed conditions are generally improving water quality and resulting in rehabilitation of the fisheries resource. However, lakes and streams capable of supporting trout populations will remain suitable for trout only if pollution control is exercised. Pollution, erosion, and excessive use or activity in spawning areas are damaging factors. Pan fish are abundant and generally under-utilized.

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Stream bank erosion has adversely affected the fish production potential in many localities.

216.3 - Assumptions

1. Hunting and fishing visits will continue to increase.

2. In the northern part of the Region, available game populations will be adequately harvested through management. Game populations will continue to expand in the southern part of the Region.

3. The demand for opportunity to observe, photograph and study all varieties of wildlife in natural forest environment will increase.

4. The public will become more receptive to game and fish management practices, but will expect that land management practices benefiting fish and wildlife be given greater emphasis.

5. The need to provide quality of opportunity in the harvesting and enjoyment of wildlife produced on National Forests will become greater in importance.

6. Management of many small game such as woodcock, squirrel and raccoon, and nongame species, will become quite significant. Greater protection will be given rare species.

7. Aquatic mammals, largely unharvested because of poor market conditions, will receive greater emphasis. Increased leisure time will permit trapping primarily as a recreational opportunity.

216.4 - Management Analysis. Adequate harvest of the wildlife resource is necessary to insure that the vegetative habitat is not damaged and the animal population is maintained in a healthy condition. Joint effort with the respective State Conservation organizations toward this mutual objective will bring effective results.

More intensive fisheries management, with a greater awareness of pollution, including effects of insecticides, is indicated. Coordination of shoreline development with the protection and management of water areas will be necessary to meet future hunting, fishing, and trapping demands. On watersheds of key streams and rivers, certain critical erosion situations must be corrected to protect valuable fish habitat.

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Where water is limited, an adquate distribution of permanent water ponds is necessary to produce wildlife.

Increased management of wetland for waterfowl will be required to offset declining populations in the Mississippi flyway.

Changes in timber types, either by natural or artificial means, will directly affect wildlife and fish habitat potential. Timber management activities, such as harvesting and certain cultural operations, will continue to give the best opportunity for creating good wildlife conditions.

A trend is emerging. More people desire to observe wildlife in its natural environment. This may change types of use in the future.

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220 - SUPPORTING ACTIVITY SITUATION

221 - FIRE CONTROL

221.1 - Need. People using the National Forest areas appreciate good fire protection.

Fire control is affected by a steady growth in public use, resource values, and costs of fire prevention, detection and suppression. Fire control is an inseparable part of resource management. For example, in many parts of the Region, the hydrologic condition of the Forest is dependent upon the period of time between Forest fires. In those areas of rapid water runoff, good fire protection is basic to the prevention of downstream flooding and sediment damage. This is well recognized by downstream residents.

Intermingled privately-owned lands and numerous small communities form a complicated land ownership pattern throughout the Region. The resulting spread of risk and hazard requires blanket intensification of effort as use continues to grow.

Increasing use of aircraft in both detection and suppression of fires is resulting in more efficient operation.

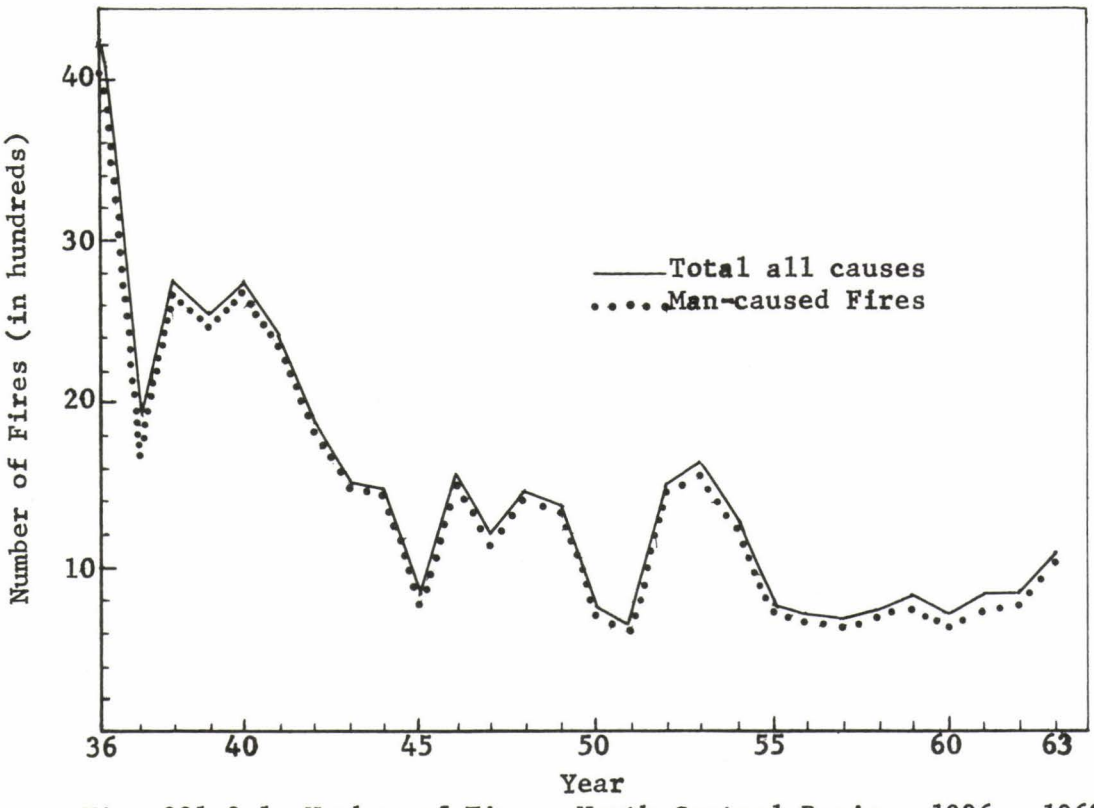

Fig. 221.2-1, Number of Fires, North Central Region, 1936 - 1963
(within NF Protection Areas - All Ownerships)

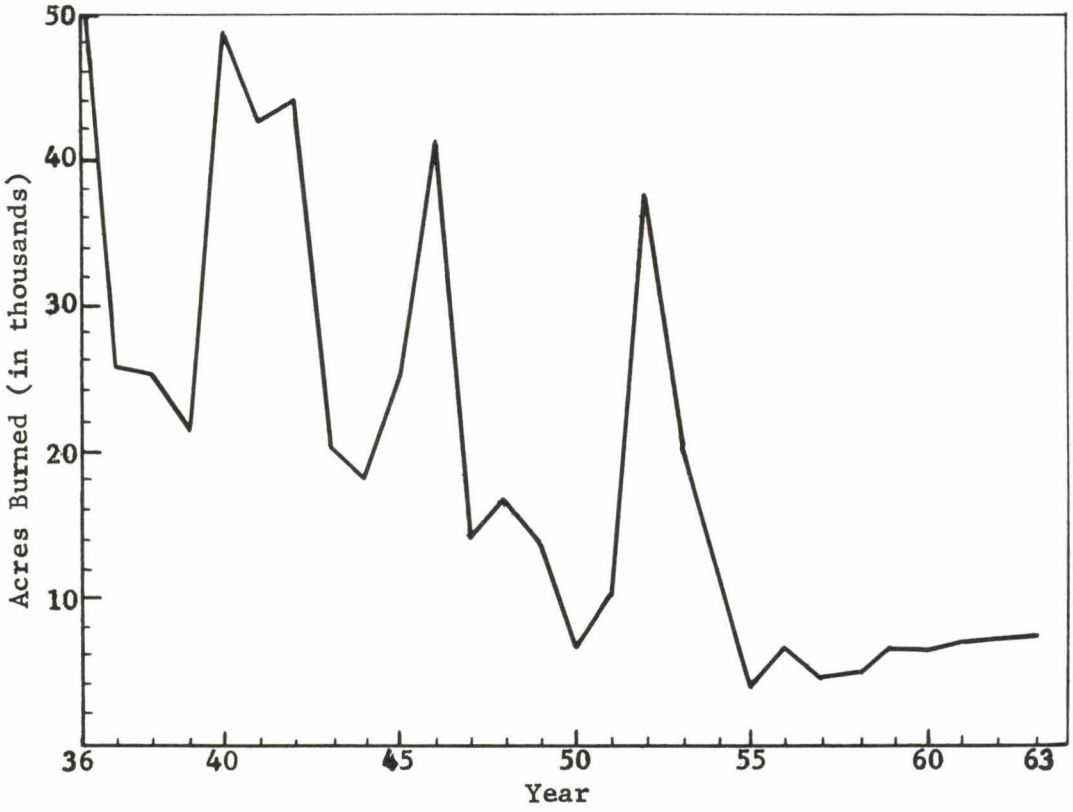

Fig. 221.2-2, Number of Acres Burned, North Central Region, 1936 - 1963
(within NF Protection Areas - All Ownerships)

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State fire protection organizations are capable and effective throughout the Region. Such an atmosphere creates a good fire protection climate and makes the National Forest protection job more effective. However, there is heavily increased use of National Forests by people who are from outside the area.

Fuels are increasing in density and extent throughout the Region as a result of heavier and more productive herbaceous growth, increased acreages of coniferous plantations and larger logging operations.

Increasing use of aircraft in both detection and suppression of fires is resulting in more efficient operation. Moderate to rough topography, poor accessibility, and increasing density of cover and surface fuels all contribute to difficulties in attacking and stopping surface and crown fires.

221.2 - Potential. The fire record for the last ten-year period is shown in the Appendix. Regionally, there has been a substantial reduction in number of fires and acres burned (see Fig. 221.2-1 and 2). Generally, fire occurrence in the Central States is about 7 times that in the Lake States. There are larger fires in the Central States. In fact, the total acreage burned over in the Central States during any period of several years has been 15 to 20 times that of the Lake States.

221.3 - Assumptions

1. Increasing resource values on all ownerships will require intensive fire planning and protection. The fire control effort must be thoroughly integrated with community and local needs.

2. Fire hazard and risk will grow in direct proportion to increasing levels of utilization and seasonal population densities.

3. Serious fire situations will increase Regionally in both frequency and intensity.

4. Railroad fires will continue to be one of the major problems.

5. Incendiarism will continue as a primary fire cause in the Central States Forests.

6. Fire control emphasis will be shifted from protection of resources to protection of people and structures.

221.4 - Management Analysis. The intensity of fire protection must be geared to keep pace with increased use of the Forest. This will require research, development, and use of more efficient fire detection and control methods. The use of aircraft as a tool will have to

be broadened. Particular management attention must be given to both the precautions which will prevent fire and to methods of controlling fire in the young coniferous stands throught the Region. Resource management programs must include protective measures to reduce both hazard and risk.

Research in effect of fire, and development of techniques through training and practice with prescribed burning, are becoming increasingly essential. The use of fire as a management tool must be completely understood by all administrators. Both long and short term effects must be evaluated.

"Project 229," a fire organization study now under way, may bring fulfillment of a major fire protection need. Close working relations between all forest fire control groups are of primary importance. The study is aimed at determining procedures which will coordinate the efforts of urban, rural, village, volunteer, forest, and industrial people. It includes forest fire emergencies along with all other types of disaster occurrences.

The anticipated increase in numbers of people and habitations in forest areas subject to fires will require a shift in fire control emphasis. The change will be away from primary attention to the forest resource. Effort must revolve around the protection of people and structures. In addition, the presence of people and structural improvements will require changes in suppression tactics. It will add to the intensity of responsibility in the fire control effort.

222 - LAND ADJUSTMENT

222.1 - Need. The North Central States' population will be more than 100 million people in the year 2000. Private land will then be restricted almost entirely to owner-guest use. Hunters and fishermen will spend 18 million leisure days on the Region's National Forests.

Public and private access needs of year 2000 will be a critical aspect of land management. Over 60 thousand landowners now hold tracts ranging from fractional acreages to entire townships, and subdivision is proceeding at a rapid rate. An expected 100,000 owners will be using, crossing, and posting 30,000 miles of property boundaries by the year 2000. Eight out of ten are now nonresident owners. An estimated four out of ten will be resident owners in 2000.

In the southern part of the Region, surface water stored in lakes provides a large portion of the water for cities and villages. Watershed conditions of National Forest areas are critical to that supply. Land management practices on private properties are often detrimental to water quality. Yet the private use demand for recreational land bordering bodies of water is continuously expanding.

222.2 - Potential. Forests can now provide only a fraction of the good quality water frontage which will be required for public recreation purposes by year 2000. There is also a serious shortage in quality public hunting lands, roughing areas, wetlands, scenic easements, public access, and study areas to meet future public needs.

The existing checkerboard pattern of forest area ownership often hampers the full development and use of both public and private land.

222.3 - Assumptions

1. Increasing public use demands for all renewable resources will require additions to key tracts for National Forest purposes.

2. Returns to local government in lieu of taxes will be resolved equitably.

3. Some consolidation of management units by land exchange will continue to be feasible and in the public interest.

4. Land values will continue to rise.

5. Competition for land will intensify. Land for public use will be more difficult to locate and acquire.

6. Posting of private land against general public use will continue at an accelerated rate.

7. More access points will have to be provided to public lands as respective uses of such areas increase.

8. Public land needs for improvement of water quality, availability, or quantity will become more critical.

222.4 - Management Analysis. Land adjustments will have to be concentrated in important watersheds, key recreation tracts, critical access routes, and areas of urgent resource program needs. In all action there must be integration of Forest goals with the total area resource effort. This will require stimulation of private land zoning programs through coordinated planning by all owners. Land classification and zoning will help resolve problems arising from the large number of opposing ownership objectives.

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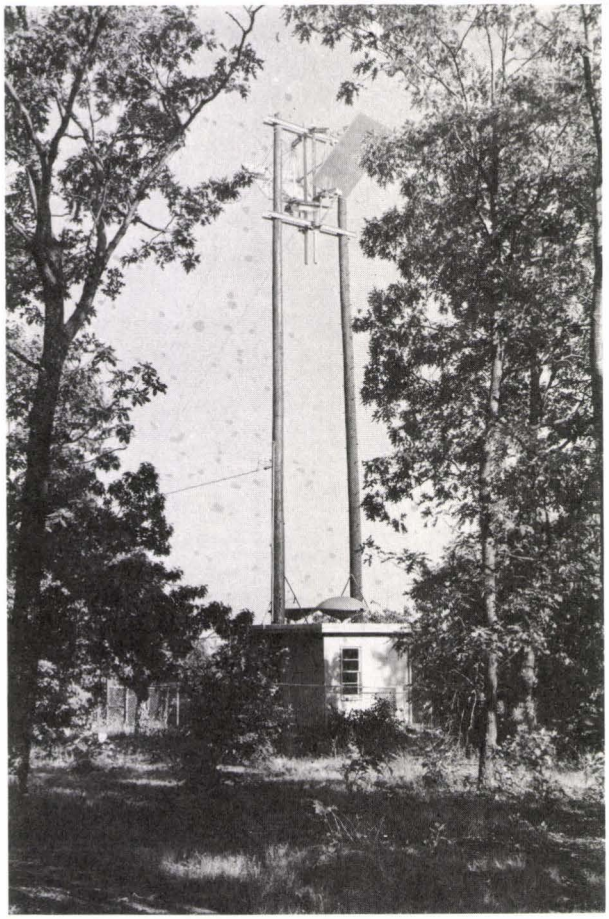
223 - LAND OCCUPANCIES

223.1 - Need. Now (1964) Regional population density is 50 people per square mile. In the year 2000 it will be 100 people per square mile. Even at this level it will be only a sixth of that for many areas in eastern United States. Forest zones with populations averaging five to ten people per square mile will seem uninhabited to travelers from a megalopolis.

Land occupancies now (1964) utilize 27,000 acres National Forest land in the Region. This is one out of every three thousand acres. Uses of the land must intensify by 2000. Forest lands are an integral part of forest area economy. There were 3 pipelines in Regional Forests in 1941, 38, in 1960. Undoubtedly, 100 will be in existence by year 2000. Similarly, there were 12 community debris disposal sites in 1941 and 129 in 1963. Managers can expect two or three hundred in year 2000. More joint use of sites and rights-of-way areas for pipelines, underground cables and electronic installations will be needed. There will be more footprints on each trail and more boats on each lake. Volume of use will more closely relate to national growth than to area population rise. See Fig. 223.1-1.



Land shortages are beginning to appear in specialized cases. This includes microwave sites.

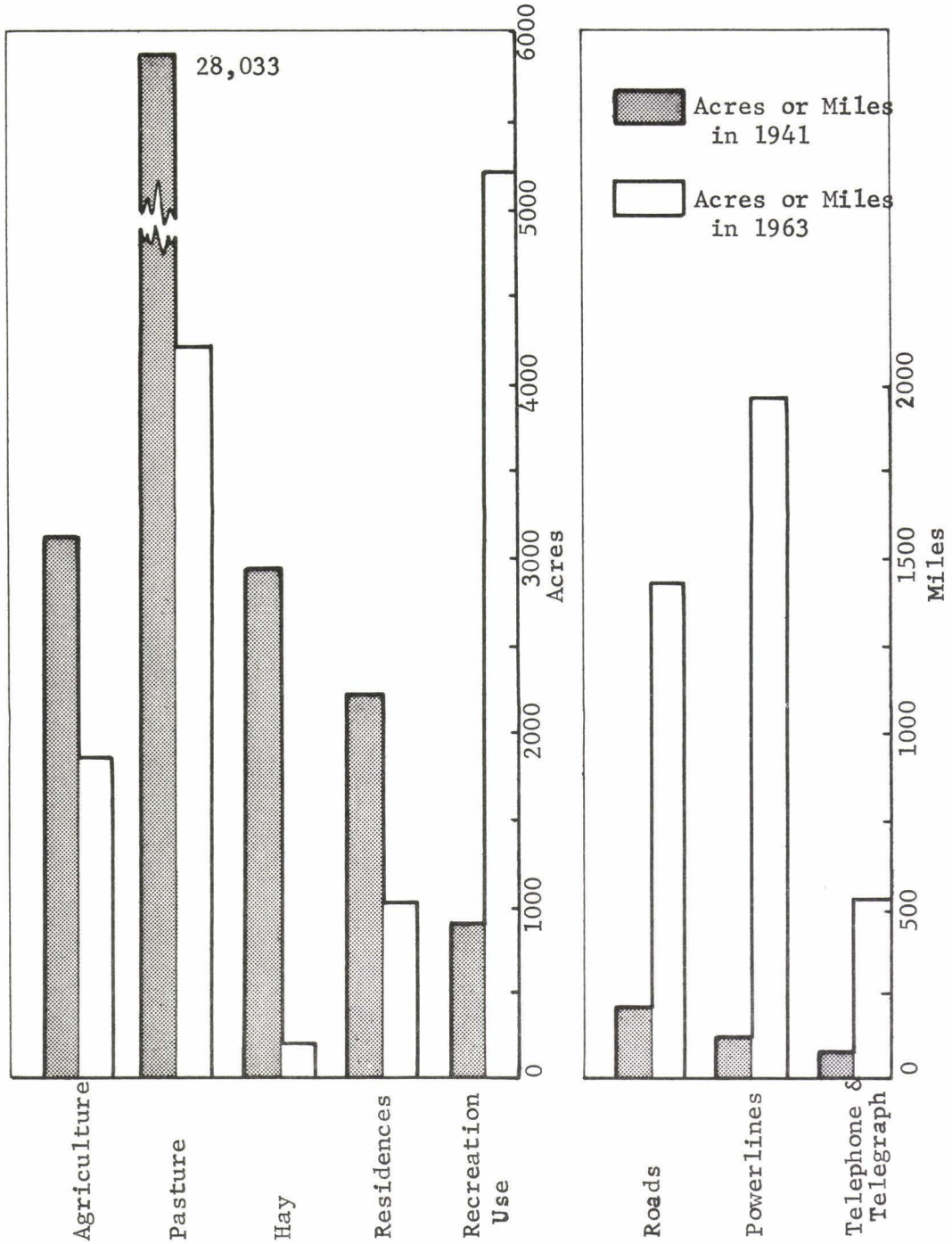


Fig. 223.1-1, Regional Trends in Predominant Types of National Forest Land Leases

Specific demand is now continuing strong in rights-of-way (road, power, telephone line), cabin sites, impoundments, winter sports areas in the northern part of the Region. Organization campsites are popular in the southern part of the Region. Applications to allow erection of private signs are increasing each year.

223.2 - Potential. Very few National Forest land areas are suitable for agricultural use. Small, garden-size cultivation areas and limited pasture sites are the exception. Opportunities for hay cutting are generally restricted to those lands which lend themselves to a crop improvement program. These are rare in forest locations.

Requests for exclusive recreation occupancy, such as summer home sites, cannot be met. National Forest ownership is generally but a small part of the total land area. Summer home and similar exclusive use needs can customarily be better fulfilled on private land. Otherwise, community and area needs for normal land use occupancy can be satisfied as it develops. In some specialized cases, such as for TV tower sites, radio tower locations, and winter sports activities, the very requirements of the use limits the number of suitable sites. In these and similar instances, land shortages are beginning to appear.

223.3 - Assumptions

1. There will be continued demand for occupancy of National Forest lands.

2. Occupancy of intermingled private lands will increase the number of occupancy trespass cases on National Forest property.

3. Use of land for agriculture in Forest areas will decline.

4. Rights-of-way use will increase.

5. Demand for access types of use, such as commercial boat landings, wharfs, roads, and limited use trails, will continue to increase at an accelerated rate.

6. Continuing expansion of the mineral industry and of state and county road improvement programs will cause an increase in the number of permits for services and utilities.

7. Pressure will continue to grow and become more intense for cabin and organization camp site permits.

223.4 - Management Analysis. There is probably no other activity where the need for intelligent and conscientious correlation of resources is greater than it is in the administration of land uses.

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The well managed use of pasture and cultivation areas is often beneficial to wildlife. Similarly, some types of right-of-way permits (pipeline, power line, telephone) provide excellent opportunities for compatible improvements in recreation, watershed, and wildlife resources. Roadside zone considerations provide the most frequent conflict with proposed power and telephone line use. Increasing recreational activity will require very carefully studied location, construction, and maintenance requirements for rights-of-way and private occupancies.

Gravel, sand, and similar permit areas need close management attention in keeping them erosion-free, safe, and aesthetic. Telephone and power companies must be encouraged to set lines back from roads.

The intensity of demand in the future will require more communal land use. One right-of-way can serve many utilities. More uses may have to go underground as the surface aesthetics of the forests increase in comparative value.

Land occupancy management success will depend upon the quality of land use zoning and the effectiveness of its implementation. The use of sound land zoning principles will promote maximum area economic growth.

224 - TRANSPORTATION

224.1 - Need. Roads within and adjacent to the National Forests are needed (1) to provide for travel within and through the National Forests and (2) to provide for protection and use of all Forest resources.

Approximately 35,000 miles of additional forest development roads are necessary to meet demands for intensive management of National Forest resources. About 90 percent of these are planned for timber haul purposes.

The development of interstate routes and improvement of highway systems is proceeding at a faster rate than at any time within the last decade. Railroad service is declining. Feeder line rail systems are being abandoned. Transportation by truck and auto exceeds all other types in National Forest areas.

Increased recreational travel in and through the National Forests is one of the major factors in integrated community and forest road planning.

The use of aircraft in forest fire detection and suppression is increasing. This, together with greater use in other operations, such as pipeline patrol, big game census, geologic and cover type mapping, herbicide programs, etc., is resulting in heavier use of landing and service areas. Existing facilities are adequate for present volume of business. However, recent applications to enlarge or improve National Forest permit airfields indicate growth in this transportation mode.

The popularity of hiking and horseback riding has risen over 300 percent in the last decade. Casual use of unplanned trail systems is outgrowing their capabilities. Planned trail systems are needed. The growth of use also emphasizes the necessity for informational and precautionary signing.

224.2 - Potential. The Forest Service plans its road system so that it is correlated and integrated with the systems of the States, Counties, and local governmental agencies.

The forest road system plan is continuously revised to keep current with changing conditions.

In 1964 there were 3,892.7 miles of existing forest highways and 16,169 miles of existing forest development roads on the approved transportation systems of the National Forests in Region 9. All of the improved forest highways are maintained by the States, Counties, or local governmental units. Approximately 5,600 miles of the forest development roads are maintained by the Forest Service. The balance are maintained by local agencies.

224.3 - Assumptions. See Fig. 224.3-1

1. Average annual traffic increase in the various Regional States will range from 3 percent to 10 percent.

2. The average annual increase in traffic in forested areas will approximate 5 percent.

3. In the next decade National Forest traffic will increase approximately 65 percent.

4. Horseback and hiking trail construction will become more important each year.

5. A better planned and more intensive airway transportation system for local use will become necessary in the immediate future.

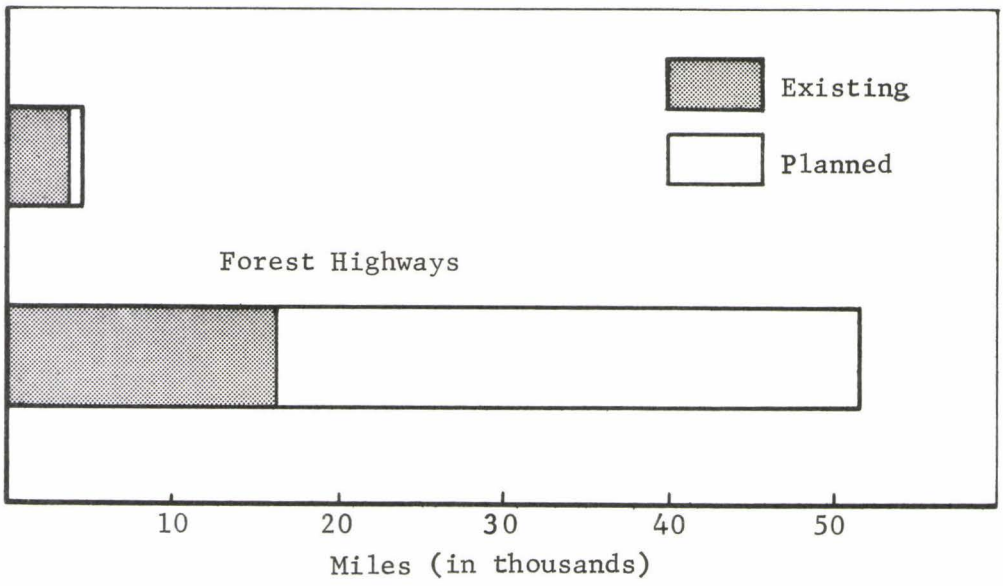

Fig. 224.3-1, Region's Transportation System as of June 1964

224.4 - Management Analysis. The standards of the vast majority of existing roads are adequate for traffic increases anticipated during the next decade.

The rate of progress in building additional roads is dependent upon appropriations. Practically no road construction of adequate all purpose road standards can be expected of timber purchasers.

The construction of additional roads must be correlated with increased demands for use of National Forest resources. Scenic values, erosion control, and wildlife habitat protection and development must be considered in all road location, design, and construction.

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CHAPTER 300 - MANAGEMENT ZONES AND OBJECTIVES

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Chapter 300 - MANAGEMENT ZONES AND OBJECTIVES

310 - GENERAL. The National Forests and National Grassland of the North Central Region are divided into Management Zones for planning purposes. These zones delineate the broadest land areas with similar associations of resources and opportunities for serving people's needs. The objectives and coordination requirements for the zones create the foundation for management procedure throughout the Region. Specific management direction and coordinating requirements have been developed for each of the following zones.

The Management Zones of the Region are:

1. The Water Influence Zone. This zone includes broad areas of land along designated streams and bodies of water where the presence of water and/or the protection of water quantity or quality is the principal consideration. This land is in great demand for recreation occupancy. (Waterfront Zones, as described in FSM 2323, are generally found in this Management Zone.)

2. The Travel Influence Zone. This zone encompasses broad areas of land along designated highways, roads, and trails. It includes land areas where the development, or continuance, of aesthetic conditions is a primary consideration. This zone and the Water Influence Zone contain the land most suitable and in demand for recreation occupancy or use. (Roadside Zones, as described in FSM 2323, are usually found in this Management Zone.)

3. The General Forest Zone. This zone makes up the largest portion of National Forest land in the Region. It is the area where resources can be managed with the most flexibility. It provides the best opportunity for sustained production of resources.

4. The Prairie Zone. This zone delineates the National Grassland area within the Region.

5. The Special Zone. This zone includes all areas classified by Congress, Secretary, Chief, or Regional Forester.

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SECTION 320 - WATER INFLUENCE ZONE

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Water Influence Zone

320 - WATER INFLUENCE ZONE

321 - DEFINITION

321.1 - Location. The Water Influence Zone extends back from the water line of selected streams and lakes. It delineates land areas where the presence of water is a predominating factor and a major item of consideration influencing the management of the land area itself. It includes land areas suitable for existing or potential recreation use or development in the process of utilizing water values. It embraces streams suitable for boating and canoeing or heavier navigational use.

321.2 - Characteristics

321.21 - Watershed. This zone covers either entire drainages or portions thereof. It is most often located in downstream areas of watersheds where streams and water bodies are above average in stability, quality, or size.

321.22 - Recreation. Water Influence Zone use frequently is intensive for picknicking, camping, resorts, organization camps, existing summer homes, bathing beaches and boat landings.

In many instances, use of this zone is limited by topgraphy and accessibility to visual enjoyment of scenic values along waterways, trails, and highways through or bordering the zone.

321.23 - Wildlife and Fish. Frequently, this is the most productive wildlife zone of the Region. Waterfowl, many species of land birds, and both large and small wild animals are found in this area. Eagle and Osprey may nest in the more remote areas of the zone. This zone may encompass the most productive and heaviest used fishing waters.

321.24 - Timber. Land in this zone is customarily well timbered and contains a good share of quality timber sites and stands.

322 - MANAGEMENT DIRECTION. Within the limitations of meeting existing and potential needs for water quality and quantity, protect and enhance the forest environment for use of recreation values. Subject to these objectives, secure positive development of wildlife and fish habitat. Correlate the growing and harvest of timber products with these goals.

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WATER INFLUENCE ZONE

323 - RESOURCE COORDINATION REQUIREMENTS

323.1 - General

1. The maintenance or improvement of water quality will be emphasized in all management effort. Within this objective, the effect of management activities will be adjusted according to recreational use and wildlife environmental needs.

2. Proposals for increasing, or decreasing, water flows or levels will be approved on the basis of positive benefit to the recreation resource. The benefit must be in addition to that of an improvement in the water resource. Further, there must be no appreciable decrease in the remaining resource values.

3. Keep signs to the minimum necessary for public information and safety.

323.2 - Recreation

1. Utilize the land area of this and the Travel Influence Zone for developments necessary to meet the needs of public recreational activites.

2. Maintain enjoyable visual conditions by perpetuating, restoring, or improving vegetative cover to reflect a pleasing forest environment. An undisturbed primitive vegetative condition will not necessarily be the goal.

3. Structural development on National Forest land will be designed and constructed to be compatible with the forest environment.

4. Utilize sites suitable for intensive public recreational use to the extent possible without deterioration of water quality and visual enjoyment.

5. Commercial development in this zone may be approved if it is necessary for meeting public recreational needs.

6. Where existing land occupancy is not in accord with these requirements, initiate corrective action.

323.3 - Wildlife and Fish

1. Stream bank, shoreline, and aquatic vegetation will be protected, improved, or altered to provide fish habitat and facilitate wildlife management. This will be conducted within the limitations of water quality maintenance and promoting good visual conditions.

2. Develop wildlife openings and similar habitat improvements necessary to maintain a satisfactory population of wildlife species. Utilize lands not required for recreational occupancy.

3. Work cooperatively with State Fish and Game Department personnel in the management of wildlife populations for zone objectives.

4. Correlate wildlife and fish habitat improvements with recreational use. (Wildlife openings used as hiker rest areas. Fisherman stairways in stream bank stabilization projects.)

5. Develop areas for the demonstration of wildlife habitat improvement programs and opportunities for visual enjoyment of wildlife species.

323.4 - Timber

1. Timber management programs will favor long-lived species adaptable to the site and suitable under conditions of occupancy and human use. Relatively short cutting cycles and long rotations will be used wherever conditions permit. Timber management planning will provide for adjustments in allowable cuts as necessary to afford the management direction for this zone.

2. Timber harvesting activities will not necessarily be confined to seasons outside of normal recreational use. However, written prescriptions will list the approved operating techniques. Harvesting techniques will be aimed at demonstrating a forest at work. They should be conducted with a minimum of interference to recreational enjoyment and safety. They should be planned for public informational and educational benefits.

3. Slash disposal will be conducted on all occupancy sites. Chipping and scattering of slash prior to the first season of use following cutting will be required in all developed areas. Lopping and scattering of slash will be the minimum required in all seen area distances paralleling roads, trails, and water routes. Elimination of unsightly slash conditions must be accomplished prior to the beginning of the second recreational season following harvesting. (Also refer to FSM 2480 and 5150.)

324 - OTHER COORDINATING REQUIREMENTS

324.1 - Lands

1. Acquire key tracts within this zone to serve public needs for facility development and access requirements.

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WATER INFLUENCE ZONE

2. Examine needs for public access if lands are ever considered for exchange.

3. To the extent legally permissible, limit methods of mineral development to those favorable to zone objectives. Where such limitation is not possible, program surface rehabilitation closely behind production activities.

4. Permit only those commercial public service developments which are compatible with the recreational objectives of this zone.

5. Require joint use of "utility strips" wherever uses of the same lands for pipelines, underground cables, power lines and roads would be compatible and feasible.

6. Strive to get power and telephone lines placed underground wherever practicable.

324.2 - Transportation

1. Locate and design roads with the objective of affording balanced development of scenic conditions of all kinds.

2. Use advance care to protect the water and fisheries resources when locating, designing, and constructing roads or bridges.

3. Use herbicides in the treatment of roadside vegetation only after resolving any potentially adverse impact.

4. At carefully selected locations, construct visitor information service facilities and erect informational signs to promote public awareness of multiple use management in action.

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SECTION 330 - TRAVEL INFLUENCE ZONE

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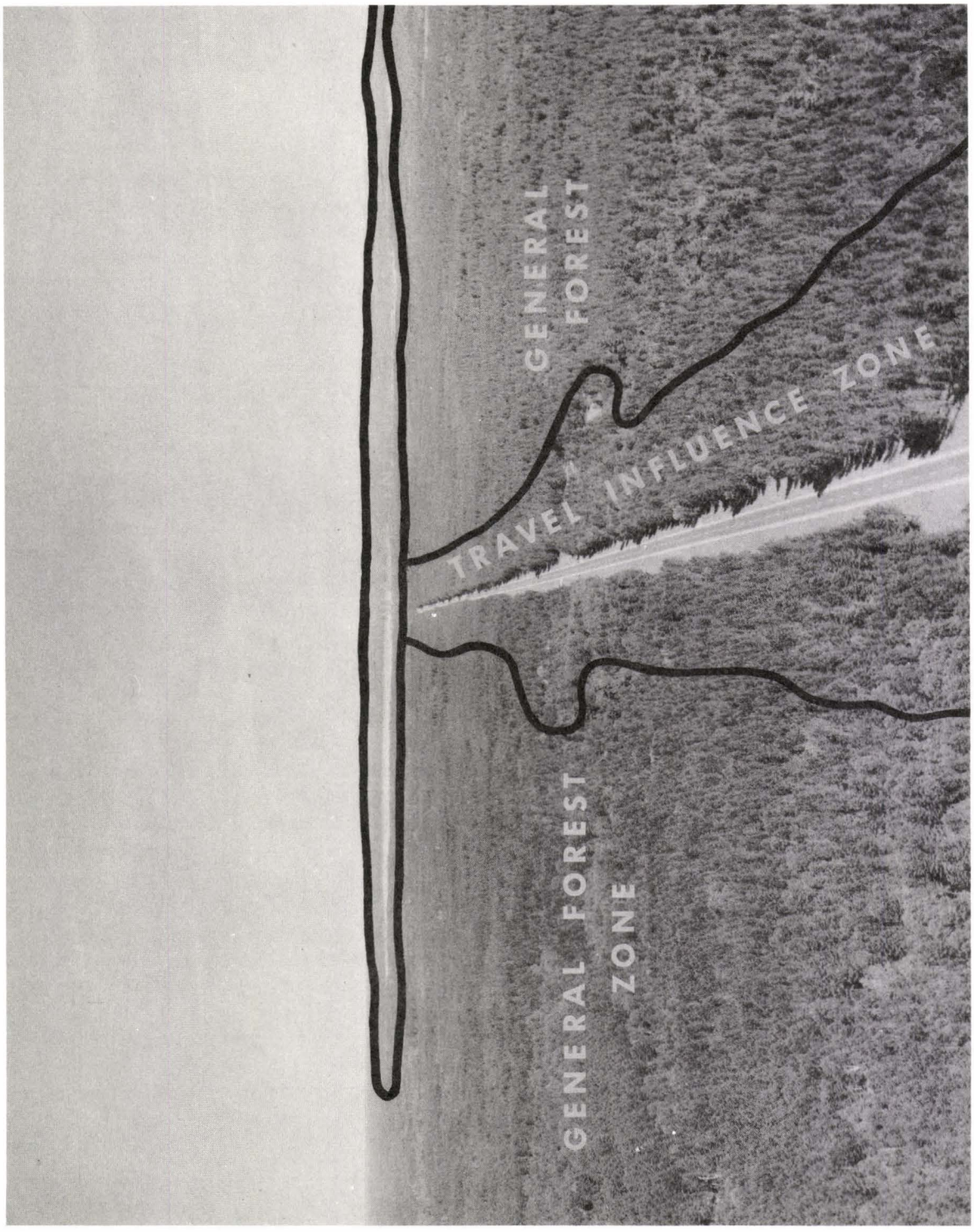
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330 - TRAVEL INFLUENCE ZONE

331 - DEFINITION

331.1 - Location. The Travel Influence Zone is made up of lands bordering selected roads and trails crossing the National Forests. It is wide enough to include existing and potential recreational occupancy sites and scenic land needs. This zone identifies the lands customarily viewed or used by visitors enroute to forest attractions and recreation facilities.

331.2 - Characteristics.

331.21 - Watershed. The zone may be found in all types of watersheds, irrespective of their hydrologic condition. Where a Travel Influence Zone coincides with a Water Influence Zone, the title, the Management Direction, and the Coordination Requirements of the latter apply.

331.22 - Recreation. The principal characteristic of the zone is its importance in the development, or continuance, of good scenic qualities along land travel routes. It includes relatively short travel distances between principal recreation attractions. It also takes in key travel routes valuable as scenic drives or those leading to major public or private recreational activity areas.

It is frequently used to fill public recreation occupancy needs overflowing a Water Influence Zone. Or, in the absence of a Water Influence Zone, it may often provide the only land suitable for public recreation facilities and services.

331.23 - Wildlife and Fish. The number of visitors traversing this zone frequently makes it second only to the Water Influence Zone in importance for visitor opportunity to observe wildlife. The volume of traffic and resulting physical dangers may limit wildlife habitat development. Water courses through this zone have strong visitor appeal for fishing as well as scenic enjoyment.

331.24 - Timber. Land in this zone will contain a variety of timber stands and vegetative growth conditions. The zone includes sufficient land, in each instance, to permit efficient administrative and technical management of the vegetative cover.

332 - MANAGEMENT DIRECTION. Within the limitations of meeting existing and potential needs for water quality and quantity, maintain a forest environment which will provide outdoor recreational enjoyment by the traveler. Subject to these objectives, utilize suitable land for recreational use or recreational facility development. Devote compatible resource management to wildlife habitat needs. Correlate the growth and harvest of timber products with these objectives.

MULTIPLE USE MANAGEMENT GUIDE

TRAVEL INFLUENCE ZONE

333 - RESOURCE COORDINATION REQUIREMENTS

333.1 - General

1. This land may be developed for recreational occupancy and use. Avoid artificiality. Favor pleasing visual conditions which will agree with forest environment.

2. Conduct construction and utilization activities within the limitation of protecting soil productivity and providing a pleasing forest environment.

3. Keep signs to the minimum necessary for public information and safety.

4. Lands along all interstate, federal aid, and forest highways together with lands along most state highways will be designated as the Travel Influence Zone. Exceptions to this must be approved by the Regional Forester.

333.2 - Recreation

1. Place improvements behind the classified roadside zone. (FSM 2323.3).

2. Provide improvements and services needed for the convenience and safety of the traveler.

3. Design facilities and program services which are compatible with the forest environment and outdoor recreation use.

4. Reserve all suitable sites needed for use by public recreation developments.

5. Emphasize concentrations of larger developments compatible with the preservation of visual value.

6. Visual values shall consist of pleasing arrangements of vegetative cover and improvements. Pleasing vegetative cover does not necessarily require undisturbed natural vegetation. Compatible forest management activities are permissible if they also reflect care for land productivity.

7. Program only those commercial developments necessary to service and facilitate public recreational use of the Forests.

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TRAVEL INFLUENCE ZONE

8. Locate and design improvements with the objective of affording public recreation enjoyment. On roads, consideration of speed, commercial hauling, utility, and short-term utilization are subordinate to those of recreational enjoyment. Major highways are an exception to this latter requirement insofar as speed, commercial hauling, and utility are concerned. However, scenic qualities are of primary importance in all instances.

333.3 - Wildlife and Fish

1. Wildlife openings and ponds can be constructed along low-speed roads in this zone. Such habitat development must be correlated with that for adjacent Water Influence and General Forest Zones.

2. Work cooperatively with the State Department of Fish and Game. Support the maintenance of wildlife populations at a level which will insure desirable vegetative conditions.

3. Provide visitors with visual wildlife enjoyment opportunities by locating game openings and watering ponds adjacent to areas of recreational use. Similarly, habitat development in this zone will be used to demonstrate wildlife management practices.

4. Design wildlife openings jointly with recreational developments in order to provide seasonal benefits for both activities. (Hiking camp spots as game openings along trails; ball fields or exercise areas with organization camps; horse corrals and open pastures used seasonally in summer home areas or with commercial developments.)

333.4 - Timber

1. Selection and regeneration of species within the general area of this zone will be based upon qualities which will insure perpetuation of timber stands under development and use. High resistance to insect and disease attacks will be a primary consideration. Relatively short cutting cycles and long rotations will be used wherever conditions permit.

2. Logging activities conducted during the tourist season will be planned as demonstrations of the working forest. Timber harvesting and cultural activities will not necessarily be confined to seasons outside of normal recreation use. They should be conducted with a minimum of interference to recreational enjoyment and public safety.

3. Timber management planning will provide for adjustments in allowable cut as necessary to reflect management direction established for this zone.

4. Slash disposal will be conducted on all occupancy sites. Chipping and scattering of slash prior to the first season of use following cutting will be required in all developed areas. Lopping and scattering of slash will be the minimum required in all seen area distances paralleling roads, trails, and water routes. Elimination of unsightly slash conditions must be accomplished prior to the beginning of the second recreational season following harvesting. (Also refer to FSM 2480 and 5150.)

334 - OTHER COORDINATING REQUIREMENTS

334.1 - Lands

1. Acquire key tracts within this zone to supplement the needs of the Water Influence Zone. Acquisition should facilitate and serve public needs for development sites and access.

2. As needed, reserve rights-of-way across lands exchanged out of National Forest ownership.

3. To the extent legally permissible, limit methods of mineral development to those favorable to zone objectives. Similarly, where authority permits, keep mineral development behind the classified roadside zone. Where such limitations are not possible, program surface rehabilitation in areas of production activity.

4. Require joint use of "utility strips" wherever uses of the same lands for pipelines, underground cables, powerlines, and roads would be compatible and feasible.

5. Strive to get power and telephone lines placed underground wherever practicable.

334.2 - Transportation

1. Locate and design roads with the objective of affording balanced development of scenic conditions of all kinds.

2. Use advance care to protect the water and fisheries resources when locating, designing, and constructing roads or bridges.

3. Use herbicides in the treatment of roadside vegetation only after resolving any potentially adverse impact.

4. At carefully selected locations, construct visitor information service facilities and erect informational signs to promote public awareness of multiple use management in action.

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SECTION 340 - GENERAL FOREST ZONE

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340 - GENERAL FOREST ZONE

341 - DEFINITION

341.1 - Location. The General Forest Zone includes all National Forest land outside of Travel Influence, Water Influence, and Special Zones. It is a broad area in which soil, climate, and topography lend themselves to the production of water, timber, wildlife habitat, dispersed recreation, and range. This zone presents resource potentials in quantities most adaptable to balanced management.

341.2 - Characteristics

341.21 - Watershed. This zone serves as the principal cachement area for underground water storage and as a regulator of major stream water yield. Because of its size, it produces the largest yield of water of any zone through both surface runoff and underground systems. In the southern portions of the Region the zone contains most of the intermittent streams. Annual precipitation varies from 20 to 48 inches.

341.22 - Timber. This zone contains the bulk of Region Nine's commercial timber lands. The lands are moderately to densely forested with a variety of hardwood and softwood species including high valued ones, such as yellow birch and walnut together with lower valued stands. Timber species tend to invade man-made or natural openings.

341.23 - Wildlife and Fish. This area provides most of the wildlife habitat in the Region. Specific areas in the northern part of the Region provide a major part of the winter deer range. The great bulk of the fishing streams in the northern portions of the Region are in this zone.

In the southern half of the Region, this zone provides both summer and winter range for turkey and deer.

341.24 - Recreation. This zone is used extensively for hunting, canoeing, stream and small lake fishing, riding, general viewing, hiking, and some camping. Formal recreational development is concentrated in the Special, Travel, and Water Influence Zones of the Region.

341.25 - Range. This zone includes the pasture lands and range allotments of all except special regional situations. It does not include the Sheyenne National Grassland.

342 - MANAGEMENT DIRECTION. Within limitations of meeting existing and potential needs for water quality and quantity, maintain quality timber growth. Subject to these resource objectives, devote

compatible resource management to fish and wildlife habitat needs. Utilize natural attractions and conditions of the Forest for dispersed recreation activities. Correlate the development and use of range and pasture resources with these objectives.

Critical wildlife areas, such as deer yards, will be classified as management units. They will be managed for habitat objectives within the limitation of maintaining good watershed conditions.

343 - RESOURCE COORDINATION REQUIREMENTS

343.1 - Timber

1. Areas where adequate erosion control is not now feasible should be excluded from timber sale proposals until feasible erosion prevention measures have been developed. As they are located, delineate such tracts on compartment maps and in M.U. atlases.

2. Give priority to reforestation of areas of rapid water runoff.

3. Delay timber sales in watersheds having a flood problem. Sale action should be withheld until the probable effect of timber harvesting has been evaluated. Sale action may proceed when practices which will prevent potential damage have been selected and scheduled.

4. Maintain wildlife trees, or small patches of food and/or shelter trees, needed for wildlife habitat. In some instances, such as at the time of regeneration cuts, it may not be practicable to retain individual trees. In such cases, retain patches, clumps, or strips of wildlife food and cover trees.

5. Remove slash resulting from harvest activities from streams, lakes, trails, and permanent roads.

6. Give advance public notice of logging or cultural activities scheduled during the recreational use season for a Roughing Area.

7. Adjust timber cutting and harvesting practices adjacent to streams as necessary to protect fish habitat and to maintain water quality.

343.2 - Wildlife and Fish

1. Winter deeryard management objectives should include production of commercial timber products within the limitation of providing satisfactory wildlife cover and food.

2. Locate, improve, and maintain permanent wildlife openings for joint use in timber harvest. Review and adjust the location of

wildlife openings at a frequency of not more than one cutting interval.

3. Locate wildlife watering ponds and openings where their development and use will be compatible with the establishment and growth of high quality timber.

4. Manage natural and artificial upland openings, including vegetatively productive areas along roads and rights-of-way, for the benefit of wildlife species. The total amount in classified natural and artificial wildlife openings should not exceed 8 percent of the National Forest land in this zone.

5. Recommend to State fish and game departments carrying capacities for wildlife which will:

a. Give satisfactory water quality yield.

b. Allow regeneration and development of quality timber.

c. Provide reasonable hunter satisfaction and wildlife observation enjoyment within the objectives of a. and b. above.

d. Give protection to agricultural crops within the immediate zone of forest influence.

343.3 - Recreation

1. Recreation facilities will consist of:

a. Minimum required for satisfactory sanitation, safety, and fire protection.

b. Primitive type physical improvements.

c. Parking facilities for hikers, berry pickers, hunters, and fishermen.

d. Hiking, horseback riding, portage, cycling, and nature trails, together with planned Roughing Areas needed to meet public use requirements.

e. Signing necessary for public safety and guidance.

2. Recreation use will be directed toward that of a dispersed nature. It should be compatible with the direction established for the zone.

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GENERAL FOREST ZONE

343.4 - Range

1. Manage transitory forage types resulting from timber harvest in a manner consistent with timber production objectives.

2. Adjust pasture and range use to the extent necessary for the ultimate improvement of water quality.

344 - OTHER COORDINATING REQUIREMENTS

344.1 - Occupancy

1. Special use permits, easements, or stipulations authorizing land occupancies will be considered and issued only on the basis of compatibility with the management direction established.

2. Residence occupancy, summer homes, or similar personal use with structural development will not be considered a compatible use.

3. Occupancies necessitating the preliminary removal of vegetation (mineral leases, pipelines, powerlines, roads) will provide for erosion control and preservation of water quality, together with the immediate restoration of vegetative cover.

4. As needed, retain adequate public right-of-way across any land exchanged from public to private ownership.

5. Require joint use of "utility strips" wherever uses of the same lands for pipelines, underground cables, powerlines and roads would be compatible and feasible.

6. Strive to get power and telephone lines placed underground wherever practicable.

7. Wherever feasible, special use permits for electronic sites on high elevations will provide for joint use of lands and buildings.

344.2 - Transportation

1. Locate and construct all roadways so they do not occupy (seasonally or otherwise) drainage courses or stream channels.

2. Soil disturbed during road construction or maintenance will be seeded or protected by stabilization treatment. Seeding and stabilization work will be finished during the first growing season after project completion.

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GENERAL FOREST ZONE

3. Remedial measures will be included in road and bridge work plans when required by project proximity to lakes or streams. Specifications will be designed to provide protection to both the fisheries resource and water quality.

4. At carefully selected locations erect informational signs to promote public awareness of multiple use management in action.

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SECTION 350 - PRAIRIE ZONE

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Prairie Zone

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350 - PRAIRIE ZONE

351 - DEFINITION

351.1 - Location. This zone consists of the Sheyenne National Grassland. It is located in southeastern North Dakota.

351.2 - Characteristics

351.21 - Range. This zone provides livestock forage for spring, summer, and fall use. Vegetative cover is primarily grass.

351.22 - Watershed. Precipitation averages less than 20 inches annually. Soils are susceptible to wind and water erosion. There is an ample supply of subsurface water in most of the area. Generally, there is a high water table.

351.23 - Wildlife and Fish. This zone includes game habitat that is becoming increasingly important. Its value for both the hunting and observation of game is high in this area of limited public land ownership. Fishing opportunities are minor due to the scarcity of surface streams.

351.24 - Timber. There is no commercial sawtimber. Pulpwood species are scarce and of poor quality. Cottonwood, willow and alder may occur along stream courses and in moist sites.

352 - MANAGEMENT DIRECTION. Within the limitation of maintaining and improving the vigor and composition of native range vegetation, develop water yield. Within this goal, provide wildlife habitat adjusted to a stable supply of forage for the local dependent cattle industry. Correlate development of recreational facilities and utilization of wildlife resource with these objectives.

353 - RESOURCE COORDINATION REQUIREMENTS

353.1 - General

1. Conduct management activities and resource utilization within the limitation of protecting the soil from wind and water erosion.

2. Use insect and disease control measures having the least damaging effect on biological values.

353.2 - Range

1. Confine range improvements, including range revegetation, to areas suitable for grazing as determined by range allotment analysis.

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PRAIRIE ZONE

2. Use management techniques in trailing, watering, and supplementary feeding of livestock so as to limit soil erosion factor in reducing land productivity.

3. Bring suitable range up to optimum production through good livestock and range management practices and construction of necessary physical improvements.

353.3 - Wildlife

1. Perform and plan game range analysis in conjunction with range allotment examination. Insure satisfactory production of both resources within the total area.

2. Use management practices which will promote wildlife habitat development consistent with good range development.

3. Encourage allotment users to leave an unmowed wildlife strip six feet wide on each side of fences.

353.4 - Timber

1. Favor tree species which give desirable wildlife protection during winter seasons.

2. Use harvesting procedures and silvicultural programs which enhance protective effects of vegetative cover to both wildlife and watershed values.

354 - OTHER COORDINATION REQUIREMENTS

354.1 - Lands

1. Reserve any right-of-way needed for public access when land is exchanged from public to private ownership.

2. Retain critical high hazard erosion areas in public ownership.

3. Require joint use of "utility strips" wherever uses of the same lands for pipelines, underground cables, powerlines, and roads would be compatible and feasible.

4. Strive to get power and telephone lines placed underground wherever practicable.

5. Wherever feasible, special use permits for electronic sites on high elevations will provide for joint use of lands and buildings.

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SECTION 360 - SPECIAL ZONE

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360 - SPECIAL ZONE

361 - DEFINITION

361.1 - Location. Special zones consist of those areas classified by the Congress, Secretary, Chief, or Regional Forester (such as wilderness, research, natural). Since a variety of circumstances apply to these lands, no general description is possible.

361.2 - Characteristics. Special zones are established because of particular conditions of public significance. An example of a special zone in the North Central Region is the Loda Lake Wildflower area in the Huron-Manistee National Forest. Similarly, any area of particular geological, historical, scientific, or vegetative interest can be considered for special zone classification. Preservation of small timber tracts in a natural undisturbed condition for the purposes of scientific study is a possibility in this classification.

Special areas of the North Central Region are listed in the expansion of this code.

361.21 - Scenic

Round Island
Loda Lake
Current and Eleven Point Rivers
La Rue

361.22 - Natural

Moquah
Pine Point
Pioneer Mothers Memorial
Keeley Creek and Lac La Croix

361.23 - Experimental

Cut Foot and Pike Bay
Sinkin
Dukes
Newaygo
Pine River
Udel
Argonne
Kaskaskia
Kawishiwi

361.24 - Historical

Lumberman's Monument

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361.25 - Canoe

Boundary Waters Canoe Area

362 - MANAGEMENT DIRECTION. A multiple use management plan for each special zone in the North Central Region will be written in accordance with the reasons for its classification. It will conform with the directives of the establishing authority. It will contain the detail and direction needed by Forest Officers to achieve the objectives for which the area has been established.

363 - COORDINATION REQUIREMENTS

363.1 - General

1. If objectives authorized in the establishment of an area result in resource conflict, resolve on the basis of maintenance or improvement of water quality.

2. Public use of resources within any special area will be determined and limited by the purpose for which it has been established.

APPENDIX

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1/ To be added when completed.

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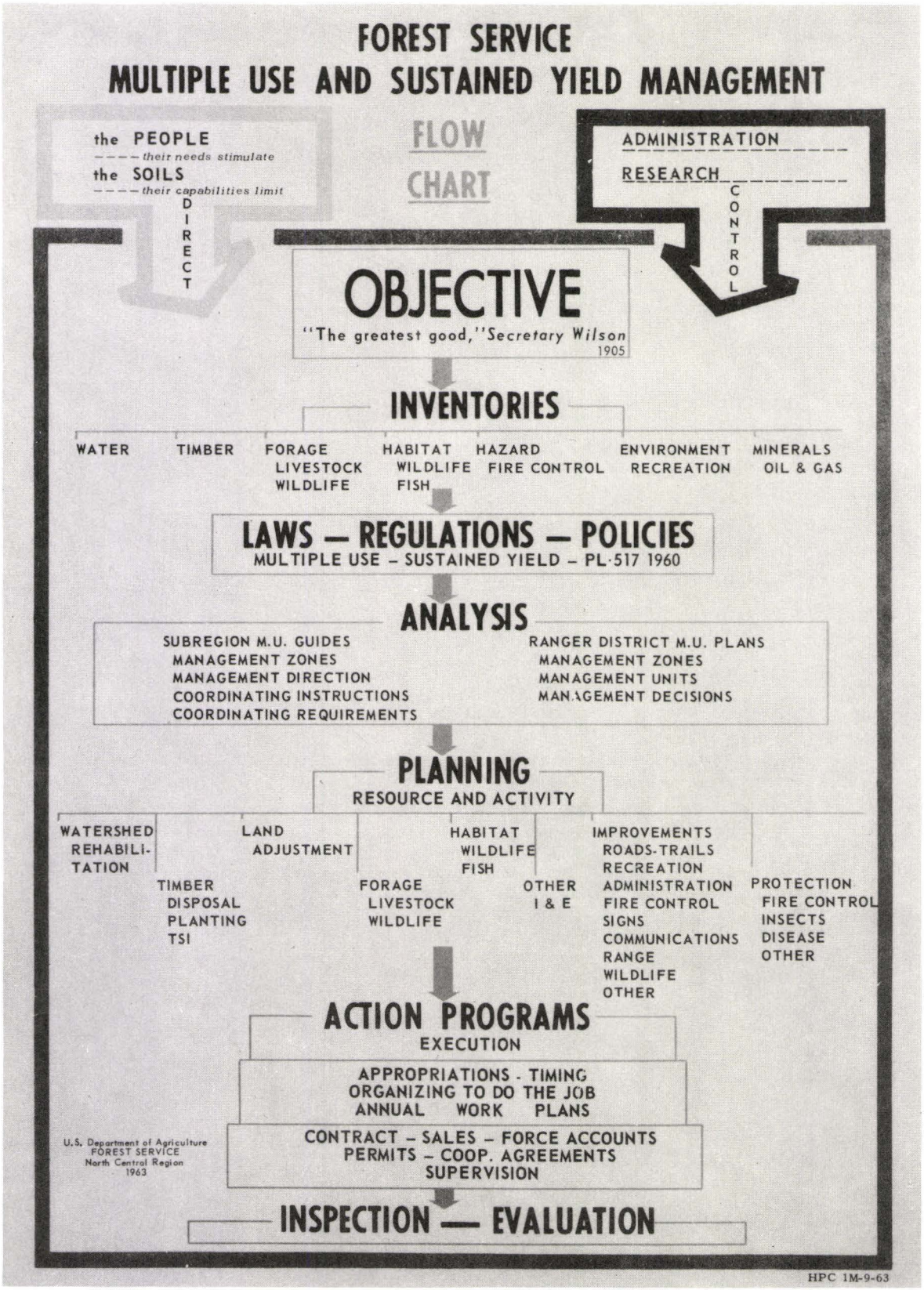

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MULTIPLE USE TERMINOLOGY

(Definitions of Terms Used on Flow Chart and in Text)

1. Resource and Activity Inventory - A compilation of basic data and information collected through survey for individual resources and activities or uses. This data is used for multiple use planning purposes and constitutes the basic information necessary for resource and activity management planning.

2. Regional Multiple Use Management Guide - A document developed for a broad planning area. A guide consists primarily of statements concerning present and future needs of the people, comparable ability of the land to produce resource benefits to meet such needs, an analysis of the management situation involved in meeting needs with resources, necessary assumptions in order to fill gaps in knowledge of future trends, and finally, statements of management objectives (direction) and the broad coordinating requirements necessary to secure attainment of such objectives.

3. Management Zones - Usually the first subdivision of a planning area. A Management Zone delineates the broadest area within which similarities in resource combinations and management opportunities lend themselves to establishment of common management direction and relative coordinating requirements.

4. Management Direction - A concise statement of objectives applying to the management zone or management unit. Management direction is the direct result of balancing demand (people's needs) for resources against the capability of the land under management.

5. Coordinating Instructions - Statements developed in the Forest Service Manual designed as suggestions to integrate management of a resource, use, or activity with one or more other resources, uses, or activities. Coordinating instructions provide general guidelines and offer opportunities for coordination of uses in applicable management situations.

6. Coordinating Requirements - Statements developed in Regional or sub-Regional Multiple Use Management Guides that direct the coordination of resources, uses, and activities on specific areas of land. These specific areas of land are either Management Zones or Special Zones.

7. Planning Area - An administrative area, usually a Ranger District, selected for development of a Multiple Use Plan; also, a Region or subdivision of a Region selected for development of a Multiple Use Management Guide.

8. Special Planning Area - A relatively large area which extends across Ranger District, National Forest, or even Regional boundaries. Such land masses warrant separate identification because of unusual management factors or considerations.

9. Special Zone - A subdivision of a planning area as designated for special purposes by the Secretary, Chief, or Regional Forester. Management direction in Special Zones is established by specific regulations or legal authority. Examples of Special Zones are: Primitive, wild, and woodland areas; resource areas; natural areas; and so forth. Management Zones do not apply in Special Zones. Management units may be delineated as needed for planning consideration of uses.

10. Multiple Use Plan - A document, usually pertaining to a Ranger District, consisting of written and graphic sections that set forth management decision based on coordinating requirement and the areas to which they apply.

11. Management Unit - A management unit is an area within a management or special zone identified by a localized situation for which particular and specific management decisions are required. Management Units do not overlap nor do they cross zone boundaries.

12. Management Decision - A statement in a Ranger District Multiple Use Plan of the necessary coordination on a specific area needed to carry out relevant coordinating requirements in order to meet pre-established management direction.

13. Resource or Activity Management Plan - A plan developed within the established coordination requirements (as spelled out in Multiple Use Management Guides and Ranger District Multiple Use Plans) for the individual resource or activity. Resource and activity management plans are not governed by inventories but utilize data derived from inventories. Resource and activity management plans are governed by Regional guides and District Multiple Use Plans. Inventory data provides a base and reference point.

14. Action Plans - The final phase of resource or activity management planning. This contains the prescription or details needed to achieve coordination of uses established for the area in the Multiple Use Management Guide and Ranger District Multiple Use Management Plan. Examples are: Timber sale layout plan; a road layout plan that is ready for sale and/or contract. Project plans of all descriptions are included in this category.

15. Action Programs - Doing the job on the ground through force account projects, sales contracts, other contractual work, leases, permits, agreements, and others. These programs must carry out the approved coordination of uses for that particular area of land.

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Table 110-1

Gross and Net National Forest Areas - North Central Region - 1964

Unit	Gross Area	Net Area	% N.F.
Clark	1,816,302	758,123	41.7
Hoosier	722,460	122,710	17.0
Mark Twain	1,191,331	601,020	50.5
Shawnee	683,658	211,554	31.0
Wayne	1,454,975	110,714	7.6
Chequamegon	1,031,922	827,076	80.1
Chippewa	1,313,787	642,138	48.9
Hiawatha	1,260,952	837,262	66.4
Huron	692,193	413,595	59.8
Manistee	1,254,855	456,674	36.4
Nicolet	941,841	640,980	68.0
Ottawa	1,505,334	865,560	57.5
Superior	3,030,065	2,029,736	67.0
Total N.F.	16,899,975	8,517,142	50.4
Manistee Purchase Unit	17,284		
Mark Twain Purchase Unit	30		
North Dakota " "	520	520	
Shawnee " "	124,874		
Superior " "	698,172	98,478	14.0
Total Purch. Units	840,880	98,998	
Indiana White River and Martin County LU-IN-39-21	3,180	3,180	
Southern Iowa LU-1A-2	360	360	
Michigan Au Sable LU-M1-2	56	56	
Michigan North Muskegon Sand Dunes LU-M1-21	640	640	
Michigan South Muskegon Sand Dunes LU-M1-22	600	600	
Michigan West Ottawa Sand Dunes LU-M1-23	5,399	5,399	
Missouri Cedar Creek LU-MO-21	12,938	12,938	
Wisconsin Crandon LU-W1-4	890	890	
Wisconsin Isolated Settlers LU-W1-21	240	240	
Total LU Lands	24,303	24,303	
North Dakota - Sheyenne National Grassland	71,109	71,109	
GRAND TOTAL	17,836,267	8,711,552	

Table 130-1

State Population by Years (in Thousands) - North Central Region

State	1910	1930	1950	1960	Projected 1976	Projected 2000
Illinois	5,639	7,631	8,712	10,081	12,500	17,200
Indiana	2,701	3,239	3,934	4,662	6,200	9,200
Iowa	2,225	2,471	2,621	2,758	3,300	4,100
Missouri	3,293	3,629	3,955	4,320	5,400	6,500
Ohio	4,767	6,646	7,946	9,706	12,800	19,500
Michigan	2,810	4,842	6,372	7,823	11,000	17,100
Minnesota	2,075	2,564	2,982	3,414	4,300	6,000
N. Dakota	577	681	620	632	800	800
Wisconsin	2,334	2,935	3,434	3,952	5,000	7,100
Regional Total	26,421	34,638	40,576	47,349	61,300	87,500
Continental U. S. Total	91,972	122,775	150,697	178,464	229,400	332,100
% increase per year						
Region		1.45	1.15	1.51	1.74	1.78
Cont. U. S.		1.61	1.44	1.56	1.82	1.86

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Table 212.1-1

Number Recreation Visits and Man Days Use (in thousands)
North Central Region

Forests	1940		1963	
	Visits	Man Days	Visits	Man Days
Mark Twain	109	327	500	278
Clark	55	73	892	664
Shawnee (Ill.)	86	59	661	228
Hoosier	52	67	162	78
Wayne	169	161	181	92
Chequamegon	74	276	401	400
Chippewa	87	507	728	817
Huron-Manistee	214	1,278	3,369	3,297
Hiawatha	124	609	780	511
Nicolet	62	437	381	469
Ottawa	113	220	404	376
Superior	91	504	1,038	2,030
Region Total	1,236	4,518	9,497	9,240
U. S. Total (NF)	16,163	42,421	122,582	126,502

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TABLE 214.1-1

NATIONAL FOREST TIMBER HARVEST TREND--MILLIONS OF BOARD FEET 1/

NORTH CENTRAL REGION

F.Y.	Total
1945	140.9
46	172.9
47	179.6
48	172.6
49	171.1
50	154.6
51	242.4
52	278.2
53	233.9
54	290.1
55	313.7
56	324.8
57	353.5
58	358.9
59	332.1
60	378.0
61	368.8
62	345.9
63	385.9
64	412.5

1/ Commercial Sales - does not include land exchange cutting.

Table 214.2-2

Distribution of Commercial Forest Land - North Central Region - by Cover Types, 1964 1/

Northern Forests:

Forest	Non-stocked	Aspen Birch	Hardwood Hemlock	Spruce Fir	Jack Pine	Red and White Pine	Other Types	Other C.F.L. 2/	Total C.F.L.
	Percent							M Acres	
Chequamegon	14.4	39.4	27.8	2.9	4.4	3.3	7.8		773.4
Chippewa	7.9	53.8	13.0	2.3	5.0	9.2	8.8		570.4
Hiawatha	9.6	28.1	20.8	4.2	13.9	7.0	16.4		792.4
Huron	3.2	23.1	1.4	.2	38.3	17.3	16.5	9.0	400.8
Manistee	6.6	19.1	16.6	-	9.0	5.9	42.8		434.1
Nicolet	7.5	40.8	29.4	3.8	3.1	4.1	11.3		592.8
Ottawa	4.4	28.7	47.3	5.6	3.1	3.9	7.0		827.2
Superior	7.2	38.1	2.7	17.3	15.2	6.3	13.2	31.9	1492.5
TOTAL	7.9	34.7	19.4	6.7	10.8	6.4	14.1	40.9	5883.6

Southern Forests:

Forest	Non-stocked	Oak-Pine	Southern Pine	Mixed Hardwoods	Oak-Hickory	Total C.F.L. 2/
	Percent					M Acres
Clark	2.1	22.2	10.4	1.3	64.0	739.8
Mark Twain	1.4	36.4	9.7	9.8	42.7	571.9
Shawnee	9.3	-	16.5	9.9	6.4	187.8
Wayne-Hoosier	5.3	1.0	10.5	14.7	68.5	199.9
TOTAL	3.0	22.0	10.8	6.7	57.5	1699.4

1/ National Forest land. Does not include private or other public land.

2/ Includes land in exchange status, experimental forest and the Huron unregulated working group.

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Table 216.2-1

Estimated National Forest Populations of Selected Wildlife Species - North Central Region - 1963

	Selected Game Species				
	Whitetail Deer	Bear	Moose	Elk	Turkey
Illinois - Shawnee	30,000				350
Indiana - Hoosier	4,500				
Michigan - Hiawatha	28,000	2,500	20		
Huron-Manistee	66,000	100		10	600
Ottawa	75,200	2,070			
Minnesota - Chippewa	26,500	920	30		
Superior	42,030	2,850	3,500		
Missouri - Clark	27,000				6,600
Mark Twain	18,000				1,000
N. Dakota - Sheyenne	380				
Ohio - Wayne	3,700				30
Wisconsin - Chequamegon	23,100	875			
Nicolet	22,945	935			
Total (rounded)	369,000	10,000	3,550	10	8,600

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TABLE 221.2-1

NUMBER OF FIRES AND ACRES BURNED IN NORTH CENTRAL REGION

(Within N.F. Protection Areas - All Ownerships)

1936 - 1963

Year	No. Fires		Acres Burned
	Total	Man-Caused	
1936	4200	4017	165,725
1937	1859	1723	25,681
1938	2722	2663	25,524
1939	2558	2523	21,441
1940	2745	2724	48,456
1941	2398	2342	42,136
1942	1838	1807	43,818
1943	1525	1491	20,203
1944	1478	1443	18,229
1945	811	800	24,967
1946	1576	1543	40,747
1947	1200	1154	14,386
1948	1260	1204	16,889
1949	1194	1151	13,972
1950	730	715	6,506
1951	628	622	10,326
1952	1478	1451	37,905
1953	1619	1596	20,279
1954	1245	1202	12,894
1955	784	745	4,034
1956	761	717	6,480
1957	652	632	4,643
1958	736	706	4,786
1959	812	785	6,232
1960	716	674	6,153
1961	812	775	6,498
1962	812	799	10,681
1963	1092	1037	7,282

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Table 223.1-1

Trend in Predominant Types of Leases, North Central Region 1/
(Number of Leases and Acreage)

Type of Lease	1941			1963		
	No.	Acres	Miles	No.	Acres	Miles
Agric. & Cult	307	3,129	-	173	1,846	-
Pasture	325	28,033	-	121	4,212	-
Hay Cutting	248	2,946	-	22	187	-
Residences	607	2,215	-	889	1,075	-
Refuse and Storage Yard	12	130	-	129	377	-
Rec. Type Use	112	906	-	174	5,238	-
Roads, etc.	243	-	202	1461	2	1434
Powerlines, etc.	57	-	111	230	4	1908
Telep. & Teleg.	53	-	81	131	7	527
Pipelines	3	-	1	38	430	119
TOTAL	1967	37,359	395	3368	13,378	3998

1/ On National Forest lands.

Table 224.3-1

Transportation System Data - North Central Region
As of June 1964

	Forest Highways			Forest Development Roads			T O T A L S		
	Existing	Planned	Total	Existing	Planned	Total	Existing	Planned	Total
Chequamegon	230.0	-	230.0	1,406.6	3,959.9	5,366.5	1,636.6	3,959.9	5,596.5
Chippewa	310.0	15.3	325.3	1,322.4	2,621.3	3,943.7	1,632.4	2,636.6	4,269.0
Clark	537.1	-	537.1	1,402.1	3,952.0	5,354.1	1,939.2	3,952.0	5,891.2
Hiawatha	347.8	29.7	377.5	1,697.8	3,567.3	5,265.1	2,045.6	3,597.0	5,642.6
Huron-Manistee	463.5	18.8	482.3	2,713.2	3,491.0	6,204.2	3,176.7	3,509.8	6,686.5
Mark Twain	376.4	-	376.4	1,068.7	3,308.1	4,376.8	1,445.1	3,308.1	4,753.2
Nicolet	237.5	-	237.5	1,470.9	2,517.4	3,988.3	1,708.4	2,517.4	4,225.8
Ottawa	364.9	45.9	410.8	1,577.9	3,754.9	5,332.8	1,942.8	3,800.8	5,743.6
Shawnee	444.3	3.3	447.6	941.7	855.1	1,796.8	1,386.0	858.4	2,244.4
Superior	352.0	26.7	378.7	1,741.7	6,017.3	7,759.0	2,093.7	6,044.0	8,137.7
Wayne-Hoosier	229.2	4.7	233.9	826.4	943.8	1,770.2	1,055.6	948.5	2,004.1
Region Totals	3,892.7	144.4	4,037.1	16,169.4	34,988.1	51,157.5	20,062.1	35,132.5	55,194.6